DOCUMENT RESUME

ED 395 638 JC 960 392

AUTHOR	Clagett, Craig A.
TITLE	Maximum Impact: Research Strategies for Effective Institutional Management, Assessment, and Advocacy.
INSTITUTION	Prince George's Community Coll., Largo, Md.
PUB DATE	Jun 96
NOTE	218p.; Materials prepared for a workshop delivered prior to the Annual Summer Institute on Institutional Effectiveness and Student Success (Charleston, SC, June 22-26, 1996).
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC09 Plus Postage.
DESCRIPTORS	*Accountability; *College Outcomes Assessment; Community Colleges; Educational Administration; Educational Research; *Institutional Administration; Institutional Characteristics; *Institutional Evaluation; *Institutional Research; Program Effectiveness; Self Evaluation (Groups); Two Year Colleges
IDENTIFIERS	*Prince Georges Community College MD

ABSTRACT

Developed to help colleges enhance the effectiveness of their institutional research efforts, this workbook provides strategies for increasing effectiveness and examples of techniques and research from Maryland's Prince George's Community College (PGCC). First, an introduction summarizes the changing responsibilities of institutional research and suggests that research represents organizational intelligence in three areas: technical or analytical, issues, and contextual intelligence. The next section lists 25 strategies for maximizing the impact of institutional research on institutional management, assessment, and advocacy, citing knowledge of the institution and its environment as the most important strategy. Forty-five references are included in this section. The following section provides graphs and tables representing techniques used by PGCC's Office of Institutional Research and Analysis (OIRA), including tables of performance indicators, a graph of a project management system, results from a research user satisfaction survey, results from mid-year assessments of project status and achievements for 1994 and 1995, and outcomes from a staff recognition program. The final section provides examples of effective institutional research, including a market analysis, a student learning outcomes assessment, an assessment of county support for Maryland Community Colleges, and a county council budget presentation prepared by PGCC, as well as a workforce training survey of Maryland community colleges prepared by a continuing education association. Appendixes include the Association for Institutional Research code of ethics; a list of 1995 goals and objectives, organizational chart, and position descriptions for the PGCC OIRA; and a questionnaire for workbook users. (TGI)

ED 395 638

Research Strategies for Effective Institutional Management, Assessment, and Advocacy

Craig A. Clagett

JC 960 392

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

BEST COPY AVAILABLE

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

C.A. Clagett

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Research Strategies for Effective Institutional Management, Assessment, and Advocacy

Craig A. Clagett
Prince George's Community College
301 Largo Road K-231
Largo, Maryland 20774-2199
301-322-0723
FAX 301-808-0960
cc5@pgstumail.pg.cc.md.us

Favorite IR Definitions

The art of providing higher education decision makers with bad answers to decision support questions which they will otherwise address using foregone conclusions or untested hypotheses. ***Harold Richard***

A profession occupying a very precious space between spineless administrators and mindless academicians. ***James Dator***

Higher education's Central Intelligence Agency. ***Stuart Rich***

The President's bodyguard. ***John Daniel***

Whatever Edgar wants. ***Robin Huntington***

Preface

I think, therefore IR.

A core value of institutional research, perhaps the core value, is that information is valuable for decisionmaking. Acknowledging that there are environmental, organizational, and personal barriers to information utilization, we must, as institutional researchers, believe that information can improve policy choices and college operational efficiency and effectiveness.

Understanding the context in which information is used is perhaps the most important prerequisite to its effectiveness. The introduction briefly discusses trends changing how and what institutional researchers do. Regardless of how these trends may affect your institution and your role in it, three fundamental principles apply if you are to make a significant difference at your institution: you need to **know your campus** and its needs, **employ resources efficiently** so as to be able to do policy-relevant analysis, and **communicate your findings effectively** so that they are used in decisionmaking.

This workbook was initially prepared for a workshop I delivered prior to the 8th annual Summer Institute on Institutional Effectiveness and Student Success in the Community College, held June 22-26, 1996 in Charleston, South Carolina. The Institute was organized by the Consortium for Community College Development, co-sponsored by the University of Michigan and Michigan State University.

The first part of the workbook is a discussion of a number of strategies that have proven successful in enhancing the effectiveness of institutional research. They come from organizational theory, literature reviews, insights from colleagues, but mostly personal experience. I have tried to emphasize the practical over the theoretical. To this end, numerous illustrations are interspersed in the text or appended at the end. The workbook is intended to be used and re-used, as a reference, a source of models for emulation, or for inspiration.

The workbook includes five examples of effective institutional research, three of which illustrate the use of research in institutional advocacy. Advocacy presents new opportunities for influence, but also poses ethical challenges as research is used in highly charged political contexts. In their efforts to be true to their institutions, researchers must be true to their profession, and true to themselves.

Table of Contents

Introduction	1
25 Strategies for Maximum Impact	4
Strategies Illustrated	
Performance Monitoring Indicators	35
Project Management System	47
Research User Satisfaction Survey	52
IR Mid-year Assessment	53
Staff Recognition Program	60
Research Impact: Examples	
Annual Market Analysis	67
Student Learning Outcomes Assessment Report	125
Assessing County Support	153
Community College Workforce Training Survey	163
"An Investment that Pays" County Council presentation	181
Appendix	
AIR Code of Ethics	200
PGCC OIRA FY95 Goals and Objectives	202
PGCC OIRA Organizational Chart	205
PGCC OIRA Position Descriptions	206
Maximum Impact IR Effectiveness Assessment Worksheet	210

Introduction

Institutional research is a profession redefining itself. The relative emphasis of the institutional researcher's responsibilities for information collection, analysis, interpretation, and presentation is shifting. While some offices remain limited to the traditional roles characterized by factbook production, external reporting, and providing data in response to ad hoc requests, others are responding to powerful technological and organizational forces that are changing what they do and how they do it.

Evolving technological capabilities and management accountability pressures are shifting the locus of decisionmaking downward in many organizations. Distributed information processing and decentralized decisionmaking authority change the way organizations work, with profound implications for those providing information and analytical support (McLaughlin, et al., 1987). Powerful and easy-to-use desktop workstations, computer networks, and user-friendly software enable staff at all levels of an institution to access and analyze data. As these capabilities become dispersed, institutional research loses the monopoly on information production it once had based on its unique skills and the mystique surrounding computer operations. However, as the number of data users multiplies, new roles for institutional research emerge. Data administration becomes increasingly important to maintain data integrity and ensure the reliable and accurate use of data (McKinney, et al., 1987). Inconsistent and erroneous interpretations of institutional data can harm both internal management and external reputations. Institutional research might become involved in the design of executive information systems, maintenance of system documentation, training of end users in proper data interpretation, and development of institutional data systems.

These new functions do not imply a diminished role in top-level policy support. But to maintain or increase influence, institutional researchers will have to be proactive and assertively reconceptualize their place in executive decisionmaking. The most promising approach involves total immersion in the milieu of top administration: understanding the culture and values of the institution, sharing the vision of its leadership, and supporting and forging the institutional agenda. Implications for institutional research practice include reorienting the research time frame to meet critical decision events, increasing use of qualitative research techniques, linking internal and external data to provide contextual understanding, broadening office expertise into new areas such as institutional advancement, and emphasizing issue-oriented integration and synthesis of findings from multiple projects rather than detailed presentations focusing on individual studies (Chan and Smith, 1991). Increasingly, the institutional researcher is becoming involved in institutional advocacy.

A historical perspective suggests that the focus of institutional research has evolved through three stages: (1) description (using simple quantitative methods);

(2) understanding (adding multivariate and qualitative techniques); and (3) advocacy (requiring political savvy and other contextual awareness).

Clearly, the successful institutional research office of the future must do more than provide data and perform number-crunching. Knowledge of the institution and its environment, and the complex predicaments facing top administrators, are essential. As Pace (1990, p.20) reminds us, "data are seldom sufficient for administrative decisionmaking, because data do not include personalities and politics and history." These latter elements are part of an institution's culture and are of great import. "An organization's culture is reflected in what is done, how it is done, and who is involved in doing it" (Chaffee and Tierney, 1988, p. 7). Knowledge of organizational culture can aid the researcher in many aspects of his or her job, including selection of research projects, research design decisions, and communication and dissemination strategies.

Terenzini's (1991) three-tier conception of institutional research as organizational intelligence is instructive. He argued that effective institutional research offices and professionals possess three forms of intelligence:

Technical/analytical intelligence, the fundamental competencies all institutional researchers are presumed to have: familiarity with standard data definitions and formulas, knowledge of database structures and file layouts, skills in research design, sampling, quantitative and qualitative research methods, mainframe and personal computer skills, and oral and written communication skills. Without higher forms of organizational intelligence, however, these number-crunching and report-writing skills are of little value, consisting of "data without information, processes without content, analyses without problems, and answers without questions" (Terenzini, p. 6).

Issues intelligence, an understanding of the substantive problems faced by top management, knowledge of organizational procedures, and general awareness of the political character of organizational decisionmaking. An issues-intelligent researcher knows how the budget process works, for example, and understands the nature of the issues to which his or her analyses will be applied.

Contextual intelligence, an understanding of the culture, values, and customs of an institution and its people. It is a sense of where the institution has been, where it is today, and where it is headed. It includes knowledge of who the key players are and their attitudes and sensitivities. It also encompasses knowledge of the external environments in which the institution must operate. Contextual intelligence is organizational wisdom and savvy that optimizes the effective application of technical competencies and issues awareness to a particular institution and its problems. "It is the form of intelligence that earns institutional research and researchers legitimacy, trust, and respect" (Terenzini, p. 9).

Competencies in research design, statistics and data analysis, computer systems and software, report writing, and related skills should be prerequisites to securing a position in institutional research. The strategies presented here seek to optimize the application of these skills so that the institutional researcher can have *maximum impact* in promoting institutional effectiveness.

Strategies for Maximum Impact

Below are numerous strategies for maximizing the impact of institutional research on institutional management, assessment, and advocacy. All have proven successful in practice. The first is by far the most important.

Know your Institution and Its Environment

To be effective, institutional researchers must know their institutions and the environments in which they exist. Ewell (1989, p. 2) states that an "overriding lesson of past research on information utilization can be concisely summarized: context is everything." Terenzini stresses that contextual intelligence can only be acquired on-the-job. Reading a good history of your institution, should such a resource be available, can also help (Terenzini, 1991, p.12.). Reading histories of your primary service area (such as your county or state) is also beneficial for those researchers working in institution's with well-defined markets. However, this literature is no substitute for actual time spent working at an institution, especially if one makes an effort to learn its culture and customs.

Knowing your institution involves much more than knowledge of its formal organizational and governance structures, its rules and procedures. An understanding of the informal networks of communication and power, and the idiosyncratic sensitivities of important players, is even more important. How do you learn such things? While some passive learning will occur with time if you are at all attuned to happenings on campus, you can speed up the process and gain a fuller understanding by deliberately seeking out regular contact with key opinion leaders in the faculty and staff. Have lunch with a variety of such people, involve them in research design meetings, welcome and encourage invitations to visit and informally share research findings. Engage long-time employees in "on-going conversations about what the institution was and is becoming" (Terenzini, 1991, p. 13). For some researchers, who may by nature be on the introverted side, such activities may require some effort. But if you are to maximize your influence on an institution, it is effort well rewarded.

Of course, being in the key decisionmaking group in the formal organizational structure helps. Those who sit on the president's cabinet, or are regular members of collegewide planning councils, for example, are in a better position to pick up on the personal and political aspects of the decision process than those who must rely on second-hand versions of events. Those on the outside have little choice but to develop informal sources; however, those on the inside will still benefit from broadening their reach to include the informal channels. It is impossible to overstate the importance of knowing your institution. If your research is to have what Heacock

(1993) calls "organizational validity," knowledge of campus politics and culture is essential.

Institutional researchers can employ some of their research tools to gain contextual information for both institutional and personal use. Explicit studies of the college or university's culture (its underlying values and beliefs as embodied in its history and leadership) and climate (encompassing the resulting attitudes and behaviors) are becoming more common. In addition to surveys, such studies often utilize qualitative research techniques such as focus groups. Climate studies are difficult to accomplish, but a body of literature is evolving that can assist the novice in this area (see Tierney, 1990).

To gain a richer understanding of the institution's external environment, researchers might consider conducting a formal environmental scan (for an overview, see Callan, 1986). A formal assessment of the demographic, economic, legal-political, organizational-competitive, socio-cultural, and technological contexts in which your institution operates can assist in strategic planning, unit operational planning, marketing, accreditation, fund raising, proposal writing, lobbying, and public relations. While committee approaches to conducting scans are often advocated, they are time-consuming and expensive to administer. Institutional research can provide less costly but useful environmental scanning by utilizing existing source materials and actively disseminating the results (Clagett, 1989). To be most useful, the results from the scan of the external environment should be integrated with an internal situation analysis (including climate studies) so that policies are considered in context of the interaction of internal and environmental factors. This, of course, is how strategic planning is supposed to work. The point here, however, is that the institutional researcher can gain important insights into how to conduct his or her activity by participating in these formal assessment activities.

Finally, an understanding of the context of higher education in general is greatly enhanced by involvement in regional and national organizations, such as AIR and the Society for College and University Planning, as well as by keeping current with educational research publications and "The Chronicle of Higher Education."

Operate Efficiently

To effectively influence decisions institutional researchers must operate efficiently. The connection between efficiency and effectiveness may not be self evident. Certainly, operating efficiently is not a sufficient condition for ensuring influence. But it is a necessary one. This is because internal and external demands for data reporting can easily preclude time for context-rich, issue-focused research efforts. In short, workload can overwhelm resources. Indeed, a national survey of institutional research directors found that "insufficient staff" was the number one

obstacle to institutional research effectiveness in influencing policy decisions (Huntington and Clagett, 1991).

Document Your Work

Among other things, surviving a condition of inadequate staffing requires good information management techniques. For example, the variety of resources and data files used in an institutional research office necessitates good habits in documentation. As anyone who has every walked into a job where documentation of files and sources was poor will know, detailed and thorough descriptions of the data are absolutely essential. Documentation of programs and applications run against the data for standard reports, special projects, and even ad hoc requests are likewise critical. Even if you never expect someone else to need to decipher your work, the main beneficiary of good documentation is yourself. Notes may be kept in a special notebook, along with paper report files, electronically with the data, or anywhere they can be easily accessed. The time required to document your work is well spent.

The partner of good documentation is good organization. Data files, computer programs, reports, and documentation should be stored logically, and that organization adhered to. We have all felt the frustration of trying to find something in a hurry when we have not tidied up our work--the same is true of electronic work. Electronic tidiness can be accomplished by the use of sub-directories and file-naming standards. Data may be organized by types (data on faculty, students, degrees), time frames (fiscal year, fall, end of semester freezes), projects (alumni survey, cost containment), cohorts (fall 1986 new freshmen), or a combination of these or other groupings. Most research offices have an organizational framework already, but it is valuable to periodically evaluate whether the existing framework serves its purpose, whether it is meaningful for the people who must use it, and whether it improves or hinders the efficiency of the office.

Construct Longitudinal Cohort Tracking Files

Most institutional research offices will benefit from the construction of longitudinal cohort files or tracking systems. These are particularly useful for enrollment management and outcomes analysis. Standard transcript files and frozen term files are not ideal for these studies. Transcript files contain elements that are periodically updated, with old values usually written over and lost. Term files are often archived off-line and pulling selected elements from several such files can involve extensive programming and media manipulation. Free-standing tracking files for selected cohorts preserve key data values and facilitate data analysis. The data elements typically included in such cohort files fall into three broad categories. First are student attributes such as demographic and academic background variables

usually collected as part of the application process. Next are student progress variables recorded each term, such as credit hours attempted and earned and term grade point average. Finally are outcome measures such as employment and further education indicators. Survey data may be included, or maintained in separate files easily linked to the cohort files by student identification numbers. Because maintaining numerous cohort files simultaneously is complex, and because there is usually little variation in successive years (unless substantial changes in institutional policies or student characteristics have occurred), it is generally sufficient to track cohorts entering every third year. Most institutions will only track cohorts entering in fall terms, though spring or summer entrants if substantial in number or notably different in characteristics may warrant separate tracking. Students should be tracked at least six years to allow time for part-time students and stop-outs whose attendance is interrupted to reach their final community college outcome.

Establish Performance Monitoring Indicators (PMIs)

Performance monitoring indicators, or PMIs, should be developed for both enrollment and resource management. Developed in consultation with appropriate offices on campus, PMIs serve both planning and evaluation roles. Typically simple counts or ratios describing enrollment, facilities, finances, or staffing at a particular point in time, the indicators are used to evaluate the performance of each office as well as to oversee the health of the entire institution. Such sets of critical success factors or key success indices (Dolance, 1989-90; Sapp, 1994) are essential for continuous improvement efforts. Like dashboard indicators(Bregamn and Grumbles, 1994), PMIs alert managers when the institution varies from anticipated or desired outcomes. Since the enrollment management indicators should include measures of student success during and after attendance, the PMIs will incorporate many of the "core indicators of effectiveness" developed by the Community College Roundtable (1994).

In addition to identifying the indicators, benchmarks or targets should be established for each. These may simply be last year's figures, or forecasts based on formal modeling or professional judgment. They may be targets based on peer institution or system averages. Or they may be goals reflecting the vision and aspirations of the institution. Whatever their genesis, the benchmarks or targets are the standards against which actual indicator values are judged.

The PMIs thus constitute the primary data used for keeping track of the success of existing policies. They are supplemented by insights derived from formal environmental scanning processes, and from informal feedback from students, staff, faculty, and others. When the PMI data vary from norms or fall short of targets, this prompts in-depth analysis. The analysis stage is critical; this is where a fuller understanding of what is really going on is obtained. Analysis will reveal if the

situation described by the PMIs is acceptable or problematical. It is at the analysis stage that potential policy improvements are often identified. The results of changed policies will be monitored in subsequent PMI compilations, in a continuous *data-analysis-policy* cycle.

Use Mandated Reports to your Advantage

Part of the institutional research workload is mandated by agencies external to the institution. Rather than treating these exclusively as compliance exercises, try to envision ways the effort expended on them can be put to institutional advantage. This might mean including additional information in your responses, re-formatting the information for alternative uses, or sharing the information with others on- and off-campus. You can use the external mandate to gain access and influence on campus. In some cases, the mandate can be used to institutional advantage with external audiences other than the requesting agency.

Exploit Technology: Work Smart

The national survey cited above also asked institutional research directors about the specific kinds of "innovations, procedures, techniques, or tools" that have helped to improve research office effectiveness and productivity (Huntington and Clagett, 1991). Not surprisingly, the top five response categories to this question dealt with computer technology. However, since the worlds of hardware and software are constantly changing, computer technology will not be discussed here. Established products are frequently updated and new products become available at a bewildering rate. One should be prepared to do a lot of investigating and shopping before making a purchase. Particular attention should be given to how difficult packages are to learn. Assessing the learning curve is important in making decisions to upgrade to a new version of an existing package, as well as in initial purchases. While applications software revolutionized institutional research, providing the greatest single leap in office productivity in institutional research's short history, researchers must avoid becoming captive to an obsession with the latest, state-of-the-art tools. You can easily devote excessive office time to evaluating new software and discovering bugs in the newest releases. In reaching decisions to adopt a new package or upgrade an existing one, the impact on office productivity should be carefully considered. In general, such transitions should be made only when the new product offers improvements that will have a substantial return on office efficiency.

Use the Internet and World Wide Web

Electronic mail, or "e-mail", has changed the way many offices do business. Many now use e-mail through campus networks that have all but replaced paper memoranda. Unlike sending memos through campus mail, e-mail is almost instantaneous. It allows for electronic responding and record-keeping and eliminates telephone tag. Some people send memos to people sitting in the next office for non-urgent matters, thereby avoiding interruptions and allowing the recipient to respond at their leisure. The disadvantage, of course, is that necessary face-to-face or "real-time" discussions may be avoided or the e-mail recipient may simply ignore the message. The same problems are true of paper memoranda. The biggest breakdown occurs when someone doesn't use the system regularly, possibly missing important messages.

However, the power of electronic mail becomes most significant for researchers in communications with others outside of one's institution. Most colleges and universities have access to networks which connect computers across the country and around the world. Using these communication networks, individuals in different locations can share information, electronic files, data, reports, documents, etc. almost instantaneously (Updegrove, Muffo, and Dunn, 1990). Access to the Internet and World Wide Web for communication and data retrieval has become an indispensable tool for institutional researchers.

What makes electronic communication such a valuable tool to institutional research professionals is the speed and ease with which research and decisionmaking may be informed by information outside of one's own institution. Qualitative and anecdotal as well as numerical information may acquired through requests made electronically (Dunn, 1989). However, as Dunn points out,

> multiplication of data access intensifies the problem of assuring the validity of the data. When everyone can and does contact his or her colleagues to find out what is going on elsewhere, it is not surprising that what emerges is not a single clear story but multiple, possibly confusing stories. (p. 81)

To avoid this problem, frame each inquiry precisely, asking for only the essential data elements and providing specific definitions. Rather than a shotgun approach, develop a set of peer institutions on the network and direct your specific data questions only to them. Follow Dunn's advice to "provide data to others as you would have them provide data to you," to encourage reciprocity and network usage (p. 82).

Aside from communicating with known colleagues for specific data, one can take advantage of a variety of vehicles for more general information gathering and

sharing. There are edited electronic "newsletters," such as the ones associated with AIR and SCUP, which report on news useful to their membership, post job listings, and contain requests for advice and other submissions by subscribers. Discussion lists are more free-form, with comments, suggestions, questions, and responses from subscribers shared in an open forum. Particularly useful are the lists maintained by AIR (relating to IPEDS, Student-Right-to-Know, Standard Survey Response Forms, etc.) and its affiliated regional and state organizations (eg. the NEAIR-list and the MdAIR-list). As more and more organizations create their own home pages, and government agencies make their data available electronically, institutional researchers without access will be left behind and find themselves increasingly disadvantaged.

Practice Project Triage: Concentrate on Campus Priorities

While the institutional research director should be a major player in campus decisionmaking, the function he or she oversees will retain a service orientation. Responding to requests for information and analysis is a central office function. Institutional researchers face the same problem as other busy professionals: making the most effective use of limited time. Personal time management techniques can provide some guidance. Ask yourself four questions:

1. **What will happen if I don't do this at all?** The first question is the basic yes/no, to do the job or not. A respected research office will get more requests than it can possibly handle and so will by necessity have to turn some down. If the request is clearly not an institutional priority but rather reflects a more narrow interest, and your overall workload precludes attention to it for an extended period, be honest with the requesting party. Suggest how the need might be met elsewhere. If the request can wait, add it to the office project queue and periodically inform the requesting party of its status. But for those requests that have such a low priority that it is unrealistic to expect action in the foreseeable future, it is better to practice project triage so you can devote adequate time to the more important ones.

2. **Is there someone else who can do this well enough?** It is important to maintain quality control and ensure accurate data support to top management, but an overextended institutional research professional cannot do it all. If a project is worth doing but your personal time is committed to other, higher priority projects, delegate the work to someone who can do an acceptable job. In a large office of highly skilled professionals, this may simply be a matter of job assignments among research staff. In smaller offices, delegation means trusting someone outside your office and may therefore be more problematic; you have built your professional reputation and office credibility on your own efforts and delegation may mean a job done differently than you would have done it. But if you maintain sufficient oversight you can get the work done in a satisfactory if not optimal manner.

3. **How much time is this task worth?** Analytical pathways can be unending, as each new insight can lead to several other areas to explore. Bringing really interesting research projects to closure requires discipline; usually, however, the pressure of other tasks makes the effort easier. (An important question raised by current research can be designated a separate follow-up project.) It is helpful to set limits at the outset and stick to a timetable for project completion--an office project management system can help.

4. **Is this the best use of my time now?** Once you know what projects you should personally work on, and have established limits by defining the project parameters, you still need to decide what task should demand your attention now. Prioritize your tasks according to deadline and importance. Don't procrastinate on the important projects by doing the easy ones first; if you do, you'll end up doing the really visible and important work in a rush--not an effective approach.

Match Tasks to Individual Strengths

As soon as the office grows beyond one person, the importance of matching job assignments with the specific skills of individual employees surfaces. This means more than simply allocating work according to established job descriptions. People differ in how they acquire information, how they reach decisions, how they prefer to interact with others. Awareness of preferred work styles may aid in producing more effective task assignments. Giving work assignments that people enjoy can improve morale, productivity, and work quality. However, care must be taken that specialization and division of labor do not create indispensable employees whose absence would totally halt work flow. It is important that office staff be cross-trained in all software and systems essential to office functioning. In addition, employees should periodically be given challenging assignments that push them to expand their skills; staff professional development should be an office goal.

Create an Annual Research Plan

Preparation of an annual research plan at the beginning of each fiscal year serves several useful purposes. Planned activities can be posted under three headings: required external reporting, routine institutional reporting, and priority research projects. Use a matrix, with these three headings as columns (plus a fourth column for estimated staff hours needed) and calendar months as the rows. Using federal and state reporting schedules, post required external reports by due date on the research plan calendar. Next, post all anticipated, recurring institutional reports by month in the second column. Post the estimated work hours, classified as director/analyst/technician level, in the fourth column for all external and routine internal reports entered. The calendar will now suggest what months have time

available for priority research projects, and approximately how much staff time is available. Use this information in discussions with your president and other top administrators; by showing that the time available for substantial research efforts is limited, you can make the selection of priority projects a visible choice--highlighting the fact that perhaps many meritorious projects cannot be done given current resources. You also gain consensus that the projects you do accept are those of greatest importance to the institution. Post the agreed-upon priority projects by month in the third column to complete your annual research plan.

In addition to using the annual research plan as a negotiating and educational tool with top management, you can elaborate upon it for office planning purposes. Office goals and objectives for the year can be developed concurrently, and all posted reports and projects can be entered into an office project management system for monitoring productivity throughout the year.

Use a Project Management System to Manage and Document Your Work

Keeping track of the multitude of projects underway concurrently in most institutional research shops is greatly facilitated by implementation of an office project management system. A busy shop may complete over 100 projects annually, most with established due dates and many containing multiple stages. Even a one-person shop can benefit from a computerized system for monitoring project progress, while such a system is especially valuable to larger offices. You do not, however, need specific project management software. Such software is intended and most appropriate for large, long-term projects with many interrelated subunits, where time and cost monitoring are essential. The need in the typical institutional research office is different. Rather than detailed tracking of one or a few individual projects, the need is for monitoring the status of dozens of projects with near-term due dates. It is easy to set up an effective project management system on the office's microcomputer database software. The following data elements might be considered the minimum necessary: project number, requested by, date of request, date needed, project name, project leader, priority, status, date begun, and date completed. Reports generated from the system might include project status report by due date, monthly report, project leader status reports, and project lists by number and alphabetically by name. Others can be created as needed, such as an annual report at year's end. The status reports can be used at periodic staff meetings to track project progress and staff performance.

Establish Annual Office Goals

As part of their college's overall planning process, most research offices prepare goals and objectives for each fiscal year. These reflect current campus strategic

priorities as well as on-going functional responsibilities. The office performance goals described here are different. These were developed by the Office of Institutional Research and Analysis (OIRA) at Prince George's Community College. They emphasize office productivity and include measures applicable to individual staff performance. The nine performance goals measure total office output, campuswide service, timeliness of task completion, dissemination, and quality. Output is measured by the total number of projects completed and the percent of requested projects this represents. Campuswide service is measured by the number of projects completed for each of the college's divisions. Timeliness is measured by the percent of priority projects completed by their target completion date. Dissemination is measured by the number of reports distributed and the number of formal presentations made. Quality is measured by the number of ERIC publications submitted, scale means on a customer satisfaction survey, and the number of awards made for superior office efforts recognized on- and off-campus for their impact. These indicators and the systems put in place to generate and track them are explained in detail below. The office's performance goals for fiscal year 1996 were as follows:

Office of Institutional Research and Analysis Performance Goals for 1995-96	
Total projects completed	100
Minimum projects per division	5
Completions/requests ratio	90%
Project completion by target date	100%
Total reports (excluding tech memos)	40
Formal presentations	6
ERIC publications	10
RUSS scale means	>4.00
EMI awards	2

Develop and Employ Office Assessment and Monitoring Tools

The OIRA uses four tools for generating and tracking performance indicators: a project management database system, publication typologies, a mid-year office review, and a customer satisfaction survey.

Project Management System. As suggested above, an indispensable tool for assessing and monitoring the performance of the research office is the Institutional Research Project Management System (IRPMS). This system is maintained on the office's standard database software package--specific project management software is not needed. (See Chambers, 1994, for a discussion of similar project tracking systems at several campuses.) The data elements included in IRPMS are an assigned project number, name of person requesting the service, request date, a target completion date, project title, project leader, priority (1 to 4), project status, date begun, date completed, and a notepad for brief commentary. At the beginning of the fiscal year, the office prepares an annual research plan incorporating all federal- and state-mandated reports, selected external surveys, recurring institutional data analyses and reports, and priority research projects extracted from the office's annual goals and objectives. All projects in this annual research plan or calendar are loaded into IRPMS July 1. During the course of the year, additional ad-hoc project requests are added to the system as received. Note that IRPMS is a *project* monitoring system, not a log of all data requests received by the office. Simple data extractions and other requests that can met within a day or two are not entered in the system.

The IRPMS is used for monitoring current operations and for biannual, in-depth reviews of office performance. Prior to scheduled staff meetings, each research team member is provided a project leader turnaround sheet listing all assigned projects and providing space for updating their status. These turnarounds are returned to the director who updates the system and then generates a project status summary for all projects with target completion dates during the next 6 weeks. This summary is used during staff meetings to review and plan staff work. IRPMS also produces a summary of project activity for use in preparing the office's monthly report to the vice president. The software permits other quick reports to be extracted from the database as needed. For the in-depth assessments of office accomplishments, a standard set of performance measures is generated from IRPMS. Trends in these indicators are tracked over time in a set of data displays prominently displayed on the office's central bulletin board. These indicators are used for goal setting, assessing office accomplishments, and evaluating the performance of individual staff members.

Publications. Publications are a primary means of disseminating office findings. But tracking patterns in report generation also provides a good way of assessing office productivity and service to the campus community. To facilitate this, research office publications at PGCC are classified according to two schemes. First, reports are issued according to a fiscal-year and report-type classification scheme (e.g., BT95-2). The publications typology includes nine categories: reports to the Board of Trustees, briefs for the Planning Council, enrollment analyses, market research, program evaluations, needs assessments, research briefs, factbooks, and technical memoranda. Reports are also classified by topic or subject area. For example, budget-related publications might be issued as reports to the Board, planning briefs, and tech memos, depending on the audience and purpose of the report. Examining

trends in publications by topic provides an indication of what subjects have demanded information support at different points in time. Thirteen topic areas are identified in this classification scheme: academic programs, affirmative action/campus climate, budget and finance, developmental education, enrollment forecasts, enrollment profiles, environmental scanning, facilities/space use, factbooks, market research, methods/documentation, staffing/employees, and student outcomes.

IRMA. While use of the project management system in routine staff meetings throughout the year ensures operational monitoring, it is useful to stop for a more ind-depth assessment of office accomplishments periodically. At PGCC, we do this twice a year. At the end of the fiscal year, the office prepares an annual report for incorporation in the college's overall "evidences of achievement" accountability report and to aid in developing goals and objectives for the following year. But we also do an "Institutional Research Mid-year Assessment" affectionately known as Irma.

RUSS. Asking your customers directly how well you have served them can provide useful feedback. PGCC's research office periodically includes a Research User Satisfaction Survey (RUSS) in its report distribution. This one-page instrument asks research users to rate (on a 1 to 5 scale) the relevance, timeliness, clarity, usefulness, and professionalism of the office's performance, and concludes with an open-ended question asking how the office could improve its service. However, as Zeglen (1994, p. 1) points out, customer satisfaction surveys are not sufficient by themselves:

> For example, a survey which met the general expectations held by the administrator who commissioned it could have methodological limitations in its sampling technique which would be viewed as a flaw in the larger milieu of institutional research professionals. So, customer satisfaction alone is *not* adequate as a monitor of the quality of institutional research work.

Inspire and Recognize Staff with Incentives and Rewards

To recognize research office staff accomplishments, and provide light-hearted incentives, PGCC's research office established five in-house award categories. Staff members are recognized for these achievements at a summer retreat, and on the bulletin board in the main office.

Team 90. To qualify for membership in Team 90, research staff must complete a minimum of 90 percent of the projects assigned to them during the year **and** complete at least 90 percent of their priority 1 and 2 projects by their target dates. Team 90 status is conferred at the end of the fiscal year based on project management system summary reports.

ERIC Publication. The Educational Resources Information Center (ERIC) sponsored by the U.S. Department of Education solicits institutional research publications for national dissemination through its on-line databases, its monthly abstract journal *Resources in Education*, the ERIC Document Reproduction Service, and its own publications such as the *ERIC Digest* series. The PGCC research office supports ERIC by submitting selected publications to the Clearinghouse each year. The decision to submit, made by the office director, is considered an honor for the report author(s). While nationally ERIC rejects half of the materials submitted to it each year, the PGCC research office has to date a 100 percent acceptance rate. Thus the office's decision, rather than ERIC's acceptance, is the locus of the honor. The director bases the decision to submit a report to ERIC on two criteria. First, will other institutions or researchers benefit from reading it? Second, does the report reflect well on the college and on OIRA in particular? To be useful to others outside PGCC, the report must include an adequate description of the context of the research and a clear explication of the methodology used. Thus many research and planning briefs do not qualify for consideration. Similarly, many projects are so county and college specific as to be of limited value to others. Beyond these considerations, however, is an assessment of report quality. The decision to submit to ERIC recognizes particularly thorough and well-written works by OIRA staff.

Century Club. The typical distribution of an OIRA report at PGCC is 25 to 30 copies. The president's staff and other members of the collegewide Planning Council receive copies of all OIRA publications. Selected administrators, faculty, and staff with specific association with the report's content also receive copies. For cost containment reasons, other copies are printed and distributed by request only. Thus distribution above 25 or 30 copies is a measure of interest, and demand for, an office publication. To give formal recognition to this acknowledgement of a report's usefulness, the office has established *The Century Club*. An OIRA report that has circulation of 100 or more copies qualifies the author(s) for inclusion in the club. A listing of all reports meeting this standard is proudly displayed on the bulletin board in the main office.

Skillbuilder Awards. Skillbuilder Awards are given to members of the OIRA team who have substantially upgraded their professional skills, enhancing the capabilities of the office. The awards are given in recognition of the attainment of specific skills gained by the employee. The skills must have tangible benefits to the performance of the office in achieving its goals.

EMI Awards. The ultimate measure of the effectiveness of institutional research is its contribution to institutional effectiveness, and the ultimate research team award is an EMI Award for achievements of Extraordinary Merit and Impact. The awards, polished stones on a black wooden base emblazoned "EMI," are crafted by the director and proudly displayed on staff members' desks. EMIs are reserved for the few projects that truly make an impact, as acknowledged by the college president, board members,

outside organizations, or peer institutions. Typically, only one EMI is awarded each year, and in some years none is awarded. The director of institutional research determines if an award is deserved based on informal discussions with members of the president's cabinet and feedback from researchers and others external to the college. Projects earning EMIs are commonly the subject of conference presentations and often serve as models for studies at other colleges. While endorsement and replication by other institutions is important, the crucial factor is the impact on PGCC. Studies that successfully defuse sensitive political issues, resolve campus controversies, and contribute to a better understanding of student performance are typical candidates. Because they are reserved for those special projects that have great impact, their award is usually an obvious choice. Office recognition as an EMI commonly follows multiple, unsolicited testimonials from policymakers who have found the work most useful.

Collaborate with other Offices, Institutions, and Associations

Collaborative projects conducted with state agencies and professional organizations can bring large returns on small investments. Colleges, through participation in systemwide data collection efforts, perhaps with the involvement of a state coordinating board, can contribute to the creation of systemwide data files permitting cost-efficient data analysis. One analyst can program and run statistical analyses of the data, with results produced for each participating college, selected peers, and systemwide averages. In addition to enrollment, graduation, employee, and cost files, surveys of entering classes, graduates, employers, and other groups can be conducted using common questionnaires, yielding other systemwide data sets for analysis. Collaborative projects can sometimes garner outside funding support, expanding the cost savings. If your state does not have a statewide institutional research organization, consider starting one. The economies of scale and shared expertise can contribute greatly to individual office productivity.

Hire Temporary, Project-specific Employees or Consultants

Making the most of available resources is a necessity for today's busy institutional researcher. It is hoped that the personal time management principles, management tools, and technological aids recommended here will enhance the productivity of institutional research, enabling it to gain the time needed to conduct meaningful policy analysis as well as meet increasing demands for data. However, office workloads may be such that merely operating at optimum efficiency is insufficient. Casual conversations, personal observations, and formal surveys (e.g., Huntington and Clagett, 1991) suggest that many institutional research offices are inadequately staffed. Offices limited to simple data reporting and descriptive analysis due to inadequate staffing are not fulfilling the potential of institutional research to

positively influence institutional decisionmaking. The following discussion highlights several strategies for increasing institutional research staffing.

If adding permanent office personnel is not on the immediate horizon, attempt to obtain budget dollars for consultant services. Even small amounts are worth pursuing; in addition to accomplishing specific tasks, establishing the budget line may be the first step to a new position. Use the consultant budget for high visibility projects and try to increase it yearly. The larger it grows, the less the financial jump to funding a staff position.

An alternative to hiring outside consultants is to use college faculty on released time. Faculty in the natural and social sciences, mathematics, business, and other departments may have the skills and the inclination to apply them to institutional research needs. Faculty research associates may be used to complete projects on an intermittent basis, as projects arise that fail to make the priority list but attract faculty interest, or may be routinely assigned to the office. The cost to the college is reasonable, usually the cost of hiring part-time adjunct faculty to cover the research associate's course load. Depending on the project, the faculty member may be released from teaching for an entire semester, or just one or two courses.

Institutional researchers have experienced varying levels of satisfaction with faculty associates. While some arrangements have worked out well for all concerned, others have had problems. Some faculty approach institutional research staff as personal research assistants rather than colleagues, are focused on their personal rather than institutional needs, and are seemingly unconcerned with deadlines. The institutional research director needs to be alert to these possibilities. At a minimum, he or she should have final approval over both the specifications of the project and the appointment of the faculty research associate.

Substantial staff help may be obtained through grant-funded research positions. Depending on the grant and the activity, even full-time research positions may be funded for periods up to five years.

Do not rule out innovative solutions just because they are not common practice. For example, your institution might be willing to fund one or two permanent half-time positions (without benefit costs) rather than a new full-time position. With good planning, hiring decisions, and task assignments, this can be an effective alternative to increasing the full-time staff.

Alter Existing Job Descriptions

If new positions, either on the operating budget or funded in other ways, are not foreseeable, another option is altering the job descriptions of existing positions.

For example, microcomputing eliminated much of the traditional function of the office secretary. No longer needed to type and proof statistical tables and draft after draft of research reports, since these are now done by the originating analyst using spreadsheet, database, and word processing software, the traditional role is largely obsolescent. Consider changing the secretarial job description. While this new position might continue main office phone coverage, and monitor the office budget and payroll function, the majority of its responsibilities would involve research tasks including data entry and tabulation, administration of surveys, preparation of graphics, and elementary statistical analysis. Train an existing secretary to do these tasks, or, if circumstances permit, create a new research technician position that enables you to recruit based on research and statistical skills.

Do More than You Are Asked: Seek New Opportunities to Contribute

The strategy for increasing staff with the greatest risk is to seek out new opportunities to contribute research and analytical support to top management. Advocating the pursuit of more work as a solution to work overload sounds irrational, but there is a certain logic to it. The idea is to break out some time to provide something new and valuable to people in a position to help you get more staff. Show them how institutional research support can be of value to their immediate concerns, and how this support could be ongoing if institutional research had the necessary staff. Ideally, the new contribution will be highly visible as well as valuable. You will need to be proactive and attuned to what looms on the administrative horizon to identify these opportunities. These initiatives will indeed increase the institutional research workload. They also promise to increase office visibility, importance, resources, and staffing. New, strong allies for continued institutional research support may be found, which may prove critical if retrenchment actions should threaten future office budgets or staffing profiles.

To sum up: be valuable and visible. Welcome opportunities to share research findings with campus constituencies in oral presentations. Consider publishing a brief but widely circulated office newsletter. Take the time to document institutional research contributions in your college's annual report. In your own monthly reports, include a sentence or two summarizing the major insights of research studies, rather than just listing them. In short, remind people how valuable the institutional research function is by making your contributions visible. If you're lucky, and do your job well, staffing just might take care of itself. If not, you will need to actively seek the new positions you need.

Annual budget requests should include staffing requests backed up by a detailed justification statement. Explain how existing resources are being used productively, and describe specific projects--beyond current office capabilities--that could be accomplished with the added staff member. If you have a temporary

position producing valuable output, make the case for funding the position on the operating budget to ensure continuation of its contribution. If you cannot write a persuasive justification, you shouldn't be seeking the position.

The timing and frequency of staffing requests need to be carefully considered. Every new request for service should not be responded to with an inadequate staffing refrain. Keep a record of unmet requests of obvious merit (use your project management system); this can be a source for your annual justification statement. Do not be discouraged if your position is turned down but be persistent in its advocacy. Build an alliance of project seekers who will support your request at the opportune time.

Communicate Effectively

Knowing what information is needed, and operating efficiently enough to produce it, are necessary but not sufficient conditions for making policy-relevant contributions to your institution. Policymakers must have your information in mind when they are reaching decisions. Thus to have optimal impact, you must communicate your findings effectively. Transforming data into useful information is both an art and a science.

In part, the challenge is to present research results in formats and at a level of sophistication accessible to top management. Few top administrators can afford the luxury of studying in detail the numerous statistical reports generated by a productive institutional research office. Only a few findings have the chance to influence institutional decisions. The research professional must devise ways of improving the odds that study insights will be assimilated into the decisionmakers' frame of reference.

The most promising place to start is to provide the decisionmakers with the data they need. *Data without a mission may as well be missing*. The institutional research director should be "in the loop", preferably on the president's cabinet, college planning council, or equivalent. If this isn't possible, ensure through other means that you are kept informed so that project priorities and research designs are chosen to maximize their utility to decisionmakers. *Data without context is misinformation*. Note that this implies more than being responsive to requests; decisionmakers may not know enough to ask for data that may be useful to them. The effectiveness of, and respect given, institutional research increases when it provides information unasked for but pertinent to the task at hand.

The timing of your communication of information is critical. Your analysis won't have much influence on a decision that was made yesterday. *Decisions don't wait for data that's late*. It's best to be proactive and have the information prepared before

it's needed, and then time its presentation to coincide with the beginning of deliberations of decisionmakers. However, since it's impossible to anticipate all decisionmakers' needs, maintaining a readily-accessible database for quick responses to late-breaking requests is also necessary. This would include an office library of reference materials as well as computer access to student and other files.

You should attempt to match the format of your communications to the level of analytical sophistication and learning preferences of recipients. As Meredith (1989) has argued, "Use the least sophisticated tool to make your case. Don't get wrapped up in procedures when results and trends are the most important product." Presidents and trustees may not accept your findings if they get overwhelmed by your statistical wizardry. While you must employ the most appropriate tool based on your judgment as a research professional, you must also present the findings in ways accessible to your audience. If you lose people in long discussions of your methodology, the valuable insights you may have discovered may be lost as well.

It's a good idea to focus on one or two research questions in a given communication. While particularly applicable to oral presentations, this is a good guideline for written reports as well. A series of brief reports, each devoted to one or two issues, will often be more effective than one large, comprehensive study. However, if a committee or task force is convened including people not on your regular report distribution list, a larger compilation of pertinent studies can be very useful.

To avoid confusing your audience, keep your language as simple and direct as possible. You may have no choice but to use sophisticated, even arcane, techniques, if the task calls for them, but you need to discuss them and their results in common terms. For most applications, you will want to avoid the jargon of your discipline. Reread your Strunk and White, and remember Thomas Jefferson's words: "The most valuable of all talents is that of never using two words when one will do."

Graphics can help communication, but they must be used with discrimination and precision. The ease of graphing provided by microcomputer software has caused the proliferation of graphs in institutional research applications, often compounding the problem of information overload and reducing the effectiveness of communication. The untutored can easily create misleading graphics, and even the skilled often use too many of them.

You might consider the infrequent use of analogies, mnemonics, or other verbal aids. While a reputation for excessive cuteness will ruin credibility, the occasional use of catchy phrases can be effective. For example, "it takes two 40-year-olds to equal one 18-year-old" will get laughs but also make the point that FTEs will fall with a one-to-one replacement of declining high school graduates with older "returning adults."

The catchy phrase captures the insights residing in a table of average credit hour loads by age cohort.

Strive to repeat major findings in subsequent communications when opportune. The active life of much institutional research in decisionmakers' minds can be very short--an answer to an immediate question is often quickly forgotten. This is unfortunate; the insights of solid research could often continue to be useful guides to decisionmaking. Look for opportunities to restate research findings, especially when they go against the conventional wisdom. Use previous findings when pertinent to new studies and build institutional knowledge. In your monthly activity reports, instead of just listing projects completed, include a sentence or two summarizing what was learned. Through iterative release of information, develop a data dialogue (Ewell, 1989, p. 17) with decisionmakers to keep research findings in their minds and to provide feedback to guide your future research efforts.

You should also share your data displays and information products with the people responsible for the databases you use. *Idle data cannot be trusted.* Data administrators and data entry staff need to know that the data is used for important purposes.

Learn and Apply the Principles of Tabular and Graphical Information Display

Data may be presented in tables, displayed in graphs, or discussed in text. Tables are best when exact numerical values need to be communicated, and when many localized comparisons are to be made. Graphs can communicate trends powerfully, and reveal relationships in the data that would remain hidden in tables. Text allows for interpretation, and is usually most accessible to broader audiences.

The use of graphs in institutional research has expanded rapidly in the recent past, spurred on by user-friendly software. Despite claims by vendors that the use of computer graphics improves decision speed and quality over traditional methods of data display, the available evidence is more mixed than supportive; indeed, research suggests graphs may be no better than tables as an information presentation method. In a comprehensive review of the literature, including 116 references, DeSanctis (1984) found that features that make a graph visually attractive, such as color, design complexity, and realism, may detract from accurate comprehension. The ability to use graphs effectively varies across individuals, so an overreliance on graphical displays may inhibit understanding and effective communication. Examination of studies directly comparing tables and graphs on several dependent variables, such as interpretation speed and accuracy, information recall, and decision-making confidence, found tables more effective than graphs more often than the reverse (DeSanctis, 1984, p. 475). Her conclusion, that "support for the superiority of graphics over

tables as a presentation mode is extremely weak," should give pause to graphics-happy institutional researchers.

Tables will continue to be the most common mode of data display in institutional research because actual data values will continue to be wanted by decisionmakers. Tables are compact and exact but their abstractness requires an educated reader. As MacDonald-Ross (1977) has pointed out, "Even quite sophisticated people need time to get the main points from a table (often much more time than they would need with a bar chart or pictorial chart) and less educated people often cannot read tables at all" (pp. 378-379). Proper table design can ease the difficulty. Adherence to the following principles of tabular design can improve data communication by tables:

1. Have a clear purpose for presenting the data and design the table to make your point.

2. Ensure through adequate labeling, including title, headings, units, and sources, that the table is self-explanatory and can stand alone if removed from its context.

3. Provide row and/or column averages for reference points.

4. Use columns for most important comparisons.

5. Rank order rows and columns by size of numbers, not alphabetical order of labels.

6. Set columns and rows compactly--do not artificially space out to fill the page. Space can be used to distinguish blocks of related data.

7. Round numbers to two significant digits to facilitate mental arithmetic.

Rounding errors are usually trivial in effect, and the positive advantage of eliminating the extra digits is that "we can see, manipulate, and communicate two-digit numbers better" (MacDonald-Ross, p. 379).

Simply because user-friendly software has made creating attractive graphs an easy task does not imply that creating effective graphs is easy. As Schmid and Schmid (1979) state, "no amount of sophistication in computer technology alone is a substitute for genuine understanding and expertise in the theory and practice of graphic presentation" (p. 12). They assert the widespread existence of "graphic illiteracy" (p. 11):

> Although statistical charts are often a more powerful and significant vehicle of communication than words, there is a strange tolerance for poorly constructed charts. Paradoxically, the reader who is outraged by an ungrammatical sentence, an ambiguous statement, or even misplaced punctuation marks may be quite tolerant or indifferent to crudely designed, idiosyncratic, inappropriate, or confusing charts. This situation is essentially reflective of the graphic illiteracy not only of the reader but also of those responsible for the preparation of poorly designed and executed charts.

MacDonald-Ross concurred, saying that "the researcher will soon discover that most practitioners are more or less incompetent!" (p. 403). Incompetence and intentional deception produce graphics that "lie," so Tufte (1983, p. 77) developed six principles of graphical integrity to ensure that graphics tell the truth about the data:

1. The representation of numbers, as physically measured on the surface of the graphic itself, should be directly proportional to the numerical quantities represented.

2. Clear, detailed, and thorough labeling should be used to defeat graphical distortion and ambiguity. Write out explanations of the data on the graphic itself. Label important events in the data.

3. Show data variation, not design variation.

4. In time-series displays of money, deflated and standardized units of monetary measurement are nearly always better than nominal units.

5. The number of information-carrying (variable) dimensions depicted should not exceed the number of dimensions in the data.

6. Graphics must not quote data out of context.

Tufte's books should be read by anyone interested in graphical displays of data, for the enjoyment as well as the enlightenment they provide. In addition to not distorting the data, graphical excellence for Tufte consists of communicating complex, usually multivariate, ideas with clarity, precision, and efficiency, summed up in his principle (1983, p. 51):

> Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space.

Tufte's idea, that most of a graphic's ink should vary in response to data variation, underlies his theory of data graphics and leads to some experimental designs that, at the least, would take some getting used to. Since they are not included in popular graphics software packages, most institutional researchers will continue to use the traditional formats.

Use the Right Graph for Your Data

Graphics for presentation purposes usually have one of the following purposes: to show component proportions, item magnitudes, trends or time series, frequency distributions of items over ranges, or relationships between variables. (Graphics can also be used for analysis; see Anscombe [1973] and Tukey [1977].) While your purpose should determine the type of graph you select, research and experience suggest some types are more effective than others:

Horizontal bar charts. Several authors, including MacDonald-Ross (p. 401) and Zelazny (p. 26), argue that horizontal bars deserve broader usage due to their versatility and effectiveness, especially for showing item comparisons. Deviations, correlations, and the mix of two components can also be shown with horizontal bars using both sides of the vertical axis.

Line and column charts. These are effective, reliable workhorses for showing time series and frequency distributions.

Pie charts. The ubiquitous pie chart is overused. While appropriate for showing composition or component parts of a whole at a single point in time, pies should be used in moderation. Most people have difficulty making fine distinctions between angles; pies with more than four segments are especially problematic. Tufte is emphatic in his distaste for pie charts: "A table is nearly always better than a dumb pie chart; the only worse design than a pie chart is several of them, for then the viewer is asked to compare quantities located in spatial disarray both within and between pies" (p. 178). Multiple pies, and those with more than four slices, are to be avoided, but the infrequent use of individual pies with four or fewer segments can be an acceptable way to add variety to a report or presentation.

Segmented bars and graphs. Segmented or stacked bar graphs attempt to show both magnitude and composition. In certain specific instances, for example when one segment is largely responsible for the overall change in magnitude, segmented forms can be effective. However, because they lose the common reference line and make comparisons difficult among all but the bottom segments, they should generally be avoided. Segmented area graphs are even more difficult to comprehend.

Three-dimensional graphs. While intriguing to look at, three-dimensional graphs contain unnecessary complexity and are often ambiguously perceived. When they vary in more dimensions than the data, three-dimensional graphs are invariably misleading, as they are rarely constructed so that the change in volume is proportional to the change in the data. MacDonald-Ross's review of the literature on visual perception led him to state that "segmented graphs and three-dimensional forms (that represent quantity by volume) should **never** be used" (p. 401).

Chloropleth maps. Chloropleth maps show geographic areas of equal value on the variable investigated by the same color, hatching, or shading. They are useful for geographic analysis, where location is paramount, but they can be misleading since they equate the visual importance of a geographic area with the value of the variable being displayed, or as Tufte puts it, "Our visual impression of the data is entangled with the circumstance of geographic boundaries, shapes, and areas" (p. 20).

Pictorial charts. Pictorial charts use icons or symbols associated with the subject matter to show quantity and are thus less abstract than other charts and more accessible to the general reader. The only acceptable pictorial chart is that which repeats identical symbols of the same size to reflect quantities. Those that change width as well as height to maintain pictorial proportions will distort the data, unless carefully designed to reflect the data change by area, a difficult and infrequent practice. Tufte shows several examples of how the "confounding of design variation with data variation" leads to "ambiguity and deception, for the eye may mix up changes in the design with changes in the data" (p. 61). Huff (1954) and Spear (1969) also point out intended and innocent examples of misleading pictographs. Two-dimensional pictographs of objects generally understood as having three dimensions further compound the distortion; a true doubling of the data in question shown by a picture twice as high may be conveyed visually (since the mind understands the image as three-dimensional) as an increase by a factor of eight. In general, pictorial charts, though popular in the mass media, should not be used in institutional research applications.

Practice Graphical Integrity: Tell the Truth

Selecting the appropriate graphical type is not all there is to proper charting. Misleading graphics may be created on purpose by the clever or unwittingly by the uninformed. The following discussion will illustrate the nature of the problem.

Graphs with arithmetic scales should almost always begin at the zero base line and not have any breaks in order to show the true variation in the data. By showing only a fraction of the scale, through a broken scale or starting at a nonzero origin, data changes may be greatly exaggerated. Clearly marking the scale break is not a sufficient remedy, since what is remembered is the distorted impression, not the

broken scale. The only exception is in an analysis of marginal changes, and only if the graph is so labeled and this context is clearly understood by the audience.

By expanding or contracting the horizontal or vertical axis, or both, the graph designer can visually alter the slope of a trend line. Changing the proportion between the ordinate and the abscissa is a simple way of manipulating the visual impression of data change. The best defense is an educated viewer who takes note of the scaling units.

Beware of charts using two or more scales; it is very easy to adjust the scales to make one trend appear greater in amount or slope and thus more important than another trend. The use of standardized units may obviate this problem, at a cost of adding abstractness to the presentation.

Finally, a word about color. Color may detract from effective communication if used in an unthinking manner. If a chart does not communicate well in black and white, color is not going to help (Zelazny, p. 80). Color should be used for a purpose, not as decoration. For example, color can be used to highlight the key part of a graph, to identify a recurring theme in a series of charts, or to distinguish actual from projected data.

Underlying this discussion of graphical design is a necessary commitment to integrity in data presentation. The institutional researcher usually has much discretion in determining how data are presented, being acknowledged as the expert in this area. Darrell Huff (1954, p. 120) made the point well:

> The fact is that, despite its mathematical base, statistics is as much an art as it is a science. A great many manipulations and even distortions are possible within the bounds of propriety. Often the statistician must choose among methods, a subjective process, and find the one that he will use to represent the facts. In commercial practice he is about as unlikely to select an unfavorable method as a copywriter is to call his sponsor's product flimsy and cheap when he might as well say light and economical.

Proper graph construction is an ethical as well as statistical and artistic exercise. "Visual presentations have a more lasting impression than the data they represent" (Spear, 1969, p. 68). Institutional researchers should strive to "tell the truth about the data" by being aware of potential distortions and by applying Tufte's principles of graphical integrity.

Of course, a commitment to professional ethics goes beyond graphical integrity. While it may be true that *if you torture data long enough, they will confess to*

anything, institutional researchers should adhere to the professional behavior norms embodied in the AIR *Code of Ethics*.

In addition to the selection and proper construction of individual graphs, the mix of graphs used in a report or presentation should be carefully considered. Page after page, slide after slide, of the same graph type should generally be avoided; the monotony can destroy effective communication. (An exception is a short series of similar data displays where trend or profile comparisons across graphs are desired. For related graphs in such a series, use the same format, typestyle, orientation and scale on all graphs, so the viewer's focus is on the data variation and not design variation.) In most applications, the principle that graphs should be used sparingly for emphasis or to reveal relationships holds. When many graphs are to be used, a variety should be used to aid audience attention, if the data and purpose allow. Zelazny (1985, p. 26) recommends a mix of 50 percent column and line graphs, 25 percent horizontal bars, 10 percent dot or scatterplot, 5 percent pie charts, with the remainder combination graphs. This recommended mix varies from common practice, where pies are frequently overused and horizontal bars underused.

Package and Present Research According to Audience and Occasion

In addition to decisions about the format of presenting data, in terms of tables, graphs, or text, you must choose the medium: written, oral, or electronic. This choice largely reflects the nature of the request. Offices need a quick response capability to respond to unforeseen inquiries. Institutional research has been defined as "whatever Edgar wants" (Clagett and Huntington, 1990) to suggest the necessary responsiveness and almost unlimited scope of institutional research. As the chief information officer of a college or university, the institutional research professional often is called upon to meet the immediate information needs of the president, governing board, or top policy and planning administrators. Although many of these specific, ad hoc requests cannot be foreseen, the research office can maintain data systems and reference materials facilitating quick and accurate responses. A telephone call, quick memo, or electronic message is often all that is required once the needed information is compiled.

Most substantial research projects will result in written reports. The nature of the report should reflect its purpose and audience (Jones, 1989). Often, short, concise research briefs focused on one or two research questions will be more effective than long, comprehensive treatises when trying to influence busy decisionmakers. The standard format of executive summary, introduction and background, method and limitations, findings, conclusions, and appendices is appropriate for more formal reports, especially if they concern highly visible or controversial policy decisions. Technical appendices may lend credibility and be read by an unseen audience of advisors to top management. The importance of the

executive summary cannot be overstated. An executive summary is not only a courtesy to your reader, but may mean the difference between your study being read or not being read. A large report lacking a summary may not be read at all; with an overview up front to spark interest, it may be read in full. At the very least, the reader will learn the major findings from reading the summary.

Strive to integrate tables and graphics into the text. Avoid having page after page of tables or graphs with no text, or data separated from text so that the reader constantly has to interrupt his or her flow to "See table X" located on another page, or worse still, in an appendix. Tufte (1983, p.181) argues

> Data graphics are paragraphs about data and should be treated as such....Imagine if graphics were replaced by paragraphs of words and those paragraphs scattered over the pages out of sequence with the rest of the text--that is how graphical and tabular information is now treated in the layout of many published pages.

While in some cases extensive appendices of data may be appropriate, pull out key data referred to in the text and place these data abstracts directly in the textual flow. Unessential supporting data should either be appended or, in reports developed for wide distribution, omitted altogether.

Writing is an art and skill that improves with practice. Make a habit of writing up short technical memos or research briefs to capture the insights of small data requests. A few words of interpretation can avoid misuse of data by others. As they accumulate, you build an office reference library helpful in responding to future requests.

Finally, consider preparing reports for publication in the professional literature. As Ruggiero, et al., (1985) argued, "If we don't write--more and better--to each other, many of us are likely to remain number crunchers and file makers--discovering, but failing to interpret and communicate."

In addition to writing well, effective institutional researchers also have good oral communications skills. The basic principles of good speech communication apply to the oral presentation of data and research findings. The presentation should have a structure, starting with an introduction to catch attention, orient the audience to the subject, and establish rapport. The purpose of the presentation should be clearly established. The body of the speech should contain transitional statements to promote a smooth, logical flow. The presentation should conclude with a brief summary and a strong final point. To overcome shyness, focus on your message and think of public speaking as simply an enlarged conversation. Vary your pitch and intensity to emphasize what is important. Use a few visual aids for emphasis, not a

lot as a crutch. Come early to check any equipment you plan to use so as to avoid technical problems.

How research findings are presented largely determines how effective they are in influencing decisionmaking. Institutional researchers should carefully evaluate how well they perform the data-to-information transformation. It is hoped that the ideas presented here can serve to stimulate such self-examination, with the goal of improving the effectiveness of the institutional research professional.

Think Context and Advocacy

The value of institutional research to a college or university varies greatly with the practitioner's willingness to understand the challenges facing an institution and its decisionmakers and to work efficiently and effectively toward their solutions. The importance of having a thorough knowledge of the context in which an institution operates, and an understanding of the culture of the institution, cannot be overstated. Colleges and universities are political institutions; institutional researchers are immersed in a political environment. Effective institutional researchers understand this, and, within the constraints of personal and professional ethics, embrace their role as institutional advocates.

In all you do, ask how you can further the goals of your institution and its top management. Be informed; be savvy; be bold; and be important.

> *Far better it is to dare mighty things, to win glorious triumphs, even though checkered by failure, than to take rank with those poor spirits who neither enjoy much nor suffer much, because they live in the great twilight that knows neither victory nor defeat.*
>
> Theodore Roosevelt, 1899

Bibliography

Anscombe, F.J. (1973). Graphs in statistical analysis. *The American Statistician*, V. 27 No. 1, 17-21.

Association for Institutional Research (1992). *Code of Ethics*.

Callan, P.M., ed. (1986). *Environmental Scanning for Strategic Leadership*. New Directions for Institutional Research, no. 52. San Francisco: Jossey-Bass, Winter 1986.

Chaffee, E.E., and Tierney, W.G. (1988). *Collegiate Culture and Leadership Strategies*. New York: American Council on Education and Macmillan.

Chambers, S.L. (1994). Using an information request database to keep track of where all that information is going. Paper presented at the 34th Annual Forum of the Association for Institutional Research, New Orleans.

Chan, S.S., and Smith, K. (1991). The changing roles of institutional research in strategic management. Paper presented at the 31st Annual Forum of the Association for Institutional Research, San Francisco, CA.

Clagett, C.A. (1989). A practical guide to environmental scanning: approaches, sources, and selected techniques. *Planning for Higher Education* 17(2): 19-28.

Clagett, C.A. (1992). Enrollment management. In Whitely, Porter, and Fenske (eds)., *The Primer for Institutional Research*. Tallahassee, FL: The Association for Institutional Research.

Clagett, C.A., and Huntington, R.B. (1990). *The Institutional Research Practitioner: A Guidebook to Effective Performance*. Largo, MD: Maryland Association for Institutional Research.

Clagett, C.A., and Huntington, R.B. (1993). *Making a Significant Difference with Institutional Research*. Largo, MD: Maryland Association for Institutional Research.

Clagett, C., and Kerr, H. (1993). Tracking and understanding your students: How to develop the research necessary for your enrollment management program. *Planning for Higher Education* 22(1): 9-15.

Clagett, C.A., and Kerr, H.S. (1995). Institutional research: What should we expect? Defining and exceeding campus expectations. Paper presented at the 35th Annual Forum of the Association for Institutional Research, Boston.

DeSanctis, G. (1984). Computer graphics as decision aids: Directions for research. *Decision Sciences*, V. 15 No. 4, 463-487.

Dunn, J.A. (1989). Electronic media and information sharing. In Ewell, P.T. (ed.), *Enhancing Information Use in Decision Making*. New Directions for Institutional Research, no. 64. San Francisco: Jossey-Bass, Winter 1989.

Ewell, P.T., ed. (1989). *Enhancing Information Use in Decision Making*. New Directions for Institutional Research, no. 64. San Francisco: Jossey-Bass, Winter 1989.

Ferrante, R., Hayman, J., Carlson, M.S., and Phillips, H. (1988). *Planning for Microcomputers in Higher Education: Strategies for the Next Generation*. ASHE-ERIC Higher Education Report No. 7. Washington, D.C.: Association for the Study of Higher Education.

Fienberg, S.E. (1979). Graphical methods in statistics. *The American Statistician*, V. 33 No. 4, 165-178.

Heacock, R.C. (1993). Personal conversation.

Heverly, M.A. (1993). Using total quality to better manage an institutional research office. *AIR Professional File* (No. 46).

Huff, D. (1954). *How to Lie with Statistics*. New York: W.W. Norton and Company.

Huntington, R.B., and Clagett, C.A. (1991). Increasing institutional research effectiveness and productivity: Findings from a national survey. Paper presented at the 18th Annual Conference of the North East Association for Institutional Research, Boston, MA.

Huntington, R.B., and Clagett, C.A. (1993). Effective institutional research: Obstacles and solutions. *Maryland 2000: Journal of the Maryland Association for Institutional Research* 2: 47-54.

Jones, L.G. (1989). The institutional research report revisited. In Ewell, P.T (ed.), *Enhancing Information Use in Decision Making*. New Directions for Institutional Research, no. 64. San Francisco: Jossey-Bass, Winter 1989.

MacDonald-Ross, M. (1977). How numbers are shown: A review of research on the presentation of quantitative data in texts. *AV Communication Review*, V. 25 No. 4, 359-409.

Matross, R. (1987). Designing an information center: An analysis of markets and delivery systems. *AIR Professional File* (No. 31).

McKinney, R.L, Schott, J.S., Teeter, D.J., and Mannering, L.W. (1987). Data administration and management. In Staman, E.M. (ed.), *Managing Information in Higher Education*, New Directions for Institutional Research, no. 55. San Francisco: Jossey-Bass, Summer 1987.

McLaughlin, G.W., McLaughlin, J.S., and Howard, R.D. (1987). Decision support in the information age. In, Staman, E.M. (ed.), *Managing Information in Higher Education*, New Directions for Institutional Research, no. 55. San Francisco: Jossey-Bass, Summer 1987.

McLaughlin, G.W., and Snyder, J.K. (1993). Plan-do-check-act and the management of institutional research. *AIR Professional File* (No. 48).

Meredith, M. (1989). Assessing and increasing the effectiveness and impact of institutional research at your institution. Workshop presented at the 1989 Annual Forum of the Association for Institutional Research, Baltimore, MD.

Nichols, J.O., Howard, R.D., & Sharp, B.H. (1987). The institutional factbook: Key to perception of institutional research and information dissemination on the campus. In Muffo, J.A. & McLaughlin, G.W. (eds.), *A Primer on Institutional Research*. Tallahassee, FL: The Association for Institutional Research.

Pace, C.R. (1990). A personal retrospective on the development of institutional research. In *Institutional Research Coming of Age*. Tallahassee, FL: The Association for Institutional Research.

Rowh, M. (1992). The role of the institutional research officer: Perceptions of job satisfaction. *Community College Journal for Research and Planning* 8(1):18-26.

Ruggiero, C.W., Elton, C.F., Mullins, C.J., & Smoot, J.G. (1985). Effective writing: Go tell it on the mountain. *AIR Professional File* (No. 21).

Schmid, C.F. & Schmid, S.E. (1979). *Handbook of Graphic Presentation*. New York: John Wiley and Sons.

Spear, M.E. (1969). *Practical Charting Techniques*. New York: McGraw-Hill.

Strunk, W. & White, E.B. (1959). *The Elements of Style*. New York: Macmillan Publishing Company.

Terenzini, P.T. (1991). On the nature of institutional research and the knowledge and skills it requires. Paper presented at the 31st Forum of the Association for Institutional Research, San Francisco.

Tierney, W.G., ed. (1990). *Assessing Academic Climates and Cultures*. New Directions for Institutional Research, no. 68. San Francisco: Jossey-Bass, Winter 1990.

Tufte, E.R. (1983). *The Visual Display of Quantitative Information*. Cheshire, CT: Graphics Press.

Tufte, E.R. (1990). *Envisioning Information*. Cheshire, CT: Graphics Press.

Tukey, J.W. (1977). *Exploratory Data Analysis*. Reading, MA.: Addison-Wesley Publishing Company.

Updegrove, D.A., Muffo, J.A., and Dunn, J.A. (1989). Electronic mail and networks: New tools for institutional research and university planning. *AIR Professional File* (No. 34).

Yancey, B.D. & Ruddock, M.S. (1987). Using statistical packages/spreadsheets. In Muffo, J.A. & McLaughlin, G.W. (eds.), *A Primer on Institutional Research*. Tallahassee, FL: The Association for Institutional Research.

Zeglen, M.E. (1994). The error of our ways: Using TQM tactics to combat institutional research bloopers. Paper presented at the 34th Annual Forum of the Association for Institutional Research, New Orleans.

Zelazny, G. (1985). *Say It with Charts*. Homewood, IL: Dow Jones-Irwin.

PRINCE GEORGE'S COMMUNITY COLLEGE Enrollment Management Performance Monitoring Indicators			
	Indicator	Description	Source
		INQUIRY	
1	HS Intent	Number and percent of high school seniors indicating intent to attend PGCC	Recruitment Office survey of county high school seniors
2	Catalogs	Number of catalogs mailed during fall application period	Admissions Office
3	SAT Reports	Number and score distribution of SAT scores received	College Board student score report summary
4	C/CF Inquiries	Written requests for PGCC information completed at College/Career Fair	Office of Recruitment
		APPLICATION	
5	Special Test	Number of students participating in PGCC Special Testing and Advising Program	Testing Office
6	Applications	Number of applications for fall admission received	Admissions Office
7	Yield	Number and percent of applicants enrolling; by race/ethnicity	Information Systems report SAB 012
		ENROLLMENT	
8	**Headcount**	Credit student headcount (third week)	Third week freeze file

9	**Credit Hours**	Total student credit hours (third week)	Third week freeze file
10	**FTE**	Full-time-equivalent enrollment eligible for state funding	Registrar
11	**Average Load**	Mean student credit hour load	Third week freeze file
12	Load Distribution	Number of students by credit hours attempted	Third week freeze file
13	**FT/PT**	Number of full-time and part-time students	Third week freeze file
14	**Demographics**	Headcount distribution by age, race/ethnicity, sex, residence	Third week freeze file
15	First-time	Number of first-time college students attending; by FT/PT, race/ethnicity	Third week freeze file
16	High School	Number and percent of current-year graduates of county high schools enrolled; by high school	Third week freeze file; county school system
17	**Remedial Need**	Number and percent of entering students needing remediation; by basic skills area, by race/ethnicity	Third week freeze file
18	Admission Status	Number of first-time students, readmits, new transfers from other colleges, and students continuing from prior term	Third week freeze file
19	Internationals	Number of international students on temporary visas; by country of origin, FT/PT, age, program, race/ethnicity, sex.	Third week freeze file

20	Schedule	Enrollment by class location, day, and time; headcount, credit hours, contact hours	Third week freeze file; ICLM-DECR/DECO
21	**Program**	Headcount enrollment by program/curriculum choice	Third week freeze file
22	Program Hours	Credit hours generated by curriculum majors	ICLM-RGCR
23	Discipline Hours	Credit hour distribution by discipline	Information Systems report SIBR030-UCA
24	Sections	Course sections offered and made; by discipline, location, day and time	Office of Instruction
25	FT/PT Faculty	Proportion of equated credit hours taught by full- and part-time faculty	Office of Instruction
26	Class Size	Average class size; by discipline	Office of Instruction
27	**Charges**	Student tuition and required fees; per credit hour, for full-time load	Finance Office
28	Financial Aid	Number of students receiving financial aid; by source, average award	Financial Aid Office
29	Market Share	Proportion of county residents attending Maryland colleges and universities enrolled at PGCC; by FT/PT/first-time FT	MHEC Enrollment by Residence report
30	High School Share	Proportion of current-year county high school graduates attending Maryland colleges and universities enrolled at PGCC; by race/ethnicity	MHEC SOAR High School Graduate System

31	PG-TRAK	Enrollment by PG-TRAK neighborhood cluster	OIRA PG-TRAK lifestyle cluster system
		PERSISTENCE	
32	Second Term Retention	Fall-to-spring retention of new students; by race/ethnicity	EOS and third week files
33	**Developmental Progress**	Number and percent of students needing remediation taking developmental courses and completing remediation; by basic skills area	OIRA cohort files
34	**Course Pass Rates**	Percentage of initial enrollees passing courses; by discipline, age, first-time/continuing status, race/ethnicity, sex	Information Systems report SIBR032
35	**Term Attendance**	Number and percent of fall entrants enrolled in subsequent terms	OIRA cohort files
36	**Cumulative Credits**	Cumulative credits earned by fall entering cohort; by credit range, by term	OIRA cohort files
37	Probation	Number and percent of students on academic probation	Third week freeze file
38	Support Services	Number and percent of students receiving academic support services; by service	Student support service supervisors
39	Activities	Number and percent of students participating in student activities; by type of activity, age, race/ethnicity, sex	College Activities Office
40	Satisfaction	Likert scale means of student satisfaction with college programs and services	OIRA current student surveys

COMPLETION			
41	**Outcomes**	Number and percent of students graduating and transferring, transferring without award, graduating but not transferring, achieving sophomore status in good standing, still enrolled, with special short-term motives, and exiting without earning 30 credits with a 2.0 GPA or transferring; by race/ethnicity	OIRA cohort files
42	**FT Graduation Rate**	Percent of full-time degree-seeking students earning an Associate degree in four years; by race/ethnicity	MHEC EIS/DIS longitudinal analysis
43	**FT MD Transfer Rate**	Percent of full-time degree-seeking students transferring to a Maryland senior institution within four years of PGCC entry; by race/ethnicity	MHEC EIS longitudinal analysis
44	Success Rate	Percent of degree-seeking students graduating and/or transferring; by race/ethnicity	OIRA cohort files
45	Progress Rate	Percent of degree-seeking students who have earned 30 credits in good standing or who were enrolled in last term of study period but have not graduated or transferred; by race/ethnicity	OIRA cohort files
46	Exit Rate	Percent of degree-seeking students who have discontinued study at PGCC without graduating, transferring, or attaining sophomore status in good standing; by race/ethnicity	OIRA cohort files

47	Goal Achievement	Self-reported achievement of student goals	OIRA surveys
48	Graduates	Number of graduates; by award type, race/ethnicity, sex	DIS edit report
49	Awards	Number of degrees and certificates awarded; by program, age, race/ethnicity, sex	Information Systems report SPB072
50	Transfers	Number of transfers to Maryland colleges and universities; by receiving institution	MHEC EIS transfer matrix
51	Transfer GPA	Grade point average distribution of PGCC transfers at Maryland senior colleges and universities	MHEC SOAR Transfer Student System
52	BA Attainment	Bachelor's degree attainment rates of PGCC students at Maryland institutions five years after transfer	MHEC SOAR Transfer Student System
		ALUMNI	
53	Employment	Percent of graduates employed in jobs related to their PGCC program; by program	OIRA graduate survey
54	Licensure	Pass rates of first-time candidates on licensure/certification exams; by program	Board reports obtained from Health Technology Division
55	Career Advancement	Percent of graduates reporting PGCC helped in job attainment, promotion, skill improvement, and career preparation	OIRA graduate survey

56	**General Education**	Likert scale means of self-reported achievement of general education goals	OIRA graduate survey
57	**Graduate Satisfaction**	Percent of graduates rating PGCC preparation for transfer/employment good or very good (on five-point scale); percent who would recommend PGCC to person seeking a degree in same program	OIRA graduate survey
58	Continuing Education	Percent of graduating class enrolling in PGCC credit or noncredit course(s) subsequent to graduation	OIRA annual unduplicated headcount analysis
59	Alumni Association	Percent of graduating class joining Alumni Association	Alumni Association
60	Alumni Donors	Percent of graduating class contributing to Annual Fund drive	Development Office

Note: Indicators in **bold** typeface are *primary PMIs* included in routine reports to the college's Board of Trustees and/or in the annual *Student Learning Outcomes Assessment Report* to the Maryland Higher Education Commission.

PRINCE GEORGE'S COMMUNITY COLLEGE Resource Management Performance Monitoring Indicators			
	Indicator	**Description**	**Source**
		FACILITIES	
1	Buildings	Campus building inventory by year of first use, gross and net assignable square feet	Physical Plant Office
2	**Space Use**	Net assignable square feet by building and space use classification	Facilities Inventory report ASB005
3	**Capital Eligibility**	NASF surplus (deficit) by space use classification, according to state standards	MHEC-CC-Table 3
4	**Room Utilization**	Average number of hours classrooms and laboratories are utilized for credit instruction between 8 a.m. and 10 p.m.	Information Systems report
5	**Contact Hours**	Weekly student instructional contact hours by class location and time	ICLM-DECO
6	**Facilities Renewal**	Dollars in facilities renewal as a percent of replacement value	Physical Plant Office
7	Energy Use	Total campus energy consumption in BTU equivalents	Physical Plant Office
8	Energy Costs	Total energy costs in current and constant dollars	Physical Plant Office
9	Electricity	Campus electricity consumption in kilowatt hours and dollars expended	Physical Plant Office

10	Natural Gas	Campus natural gas consumption in therms and dollars expended	Physical Plant Office
		FINANCE	
11	**Revenues**	Unrestricted current fund revenues by source	IPEDS Finance Survey; CC-4
12	**Expenditures by Function**	Unrestricted current funds expenditures by function	IPEDS Finance Survey; CC-4
13	**Expenditures by Object**	Unrestricted current funds expenditures by object classification; by function	CC-4 exhibit III
14	**Cost per FTE**	Current funds expenditure per full-time-equivalent student	CC-4 exhibit V
15	Student Revenue/Total Expenditures	Student revenue as a percent of total educational and general expenditures	Calculation
16	Net Student Revenue per FTE	Student revenue minus institutional financial aid per full-time-equivalent student	Calculation
17	County Aid per FTE	County contribution per full-time-equivalent student; with peer college comparisons	OIRA analysis
18	County Share of PGCC Budget	County contribution percent of total college current fund budget; with peer college comparisons	MACC *Databook*
19	College Share of County Budget	County contribution as percent of county general fund expenditures; with peer college comparisons	OIRA analysis of DFS *Local Government Finance* data
20	Real County Aid Trend	County contribution in inflation-adjusted dollars	OIRA analysis
21	Real State Aid Trend	State contribution in inflation-adjusted dollars	OIRA analysis

22	Discipline Costs	Cost per FTE by instructional discipline	Discipline Cost Analysis produced by Information Systems and Accounting Offices
23	Inferred Program Costs	Cost of educating a graduate in each instructional program	OIRA analysis
24	Underprepared Student Costs	Annual expenditure for services supporting underprepared students	OIRA analysis
25	**Endowment**	Market value of endowment at end of fiscal year	CFAE report
26	**Dollars in Private Giving**	Funding from private sources, including alumni, corporations, and foundations	CFAE report
27	Tuition Waiver Expense	Total cost of tuition waivers to staff, dependents, seniors, national guard, and disabled	Finance Office
28	Percent Salaries	Percent of current funds expended for salaries and wages (excludes benefits)	IPEDS Finance Survey
29	**Percent Budget to Institutional Support**	Percent of E&G dollars expended for institutional support	IPEDS Finance Survey
	STAFFING		
30	**Employees**	Total college employees; by full- and part-time	PHBR080, EDS file
31	**Occupations**	Full-time employees by occupational classification	PHBR080, EDS file
32	**Staff Ethnicity**	Full-time employees by race/ethnicity; by occupational classification	PHBR080, EDS file

33	**Turnover**	Percent of total positions within each occupational classification in which a terminated employee was replaced during prior fiscal year (full-time only)	Personnel Office
34	FTE Staff	Full-time-equivalent staff by function	NACUBO Comparative Financial Statistics
35	**Faculty**	Full-time and adjunct faculty; by race/ethnicity	PHBR080, EDS file
36	FTE Faculty	Full-time-equivalent faculty; by division	Office of Instruction
37	Staff/Faculty Ratio	Ratio of FTE staff to FTE faculty	Calculated
38	**Faculty Degrees**	Highest degrees of full-time instructional faculty	EDS file
39	Faculty Rank	Distribution of full-time faculty by rank; by sex and race/ethnicity	EDS file
40	**Tenure**	Percent of full-time faculty with tenure; by sex and race/ethnicity	IPEDS-SA, EDS file
41	**Faculty Salaries**	Average salaries of ten-month faculty; by rank	IPEDS-SA, EDS file
42	Faculty Years of Service	Distribution of full-time faculty by years of service to PGCC; with average salaries	Personnel Office
43	Faculty by Department	Full-time and adjunct faculty by division and department	Office of Instruction
44	Percent FT Faculty Sections	Percent of class sections taught by full-time faculty	Office of Instruction
45	Percent PT Faculty Sections	Percent of class sections taught by adjunct faculty	Office of Instruction

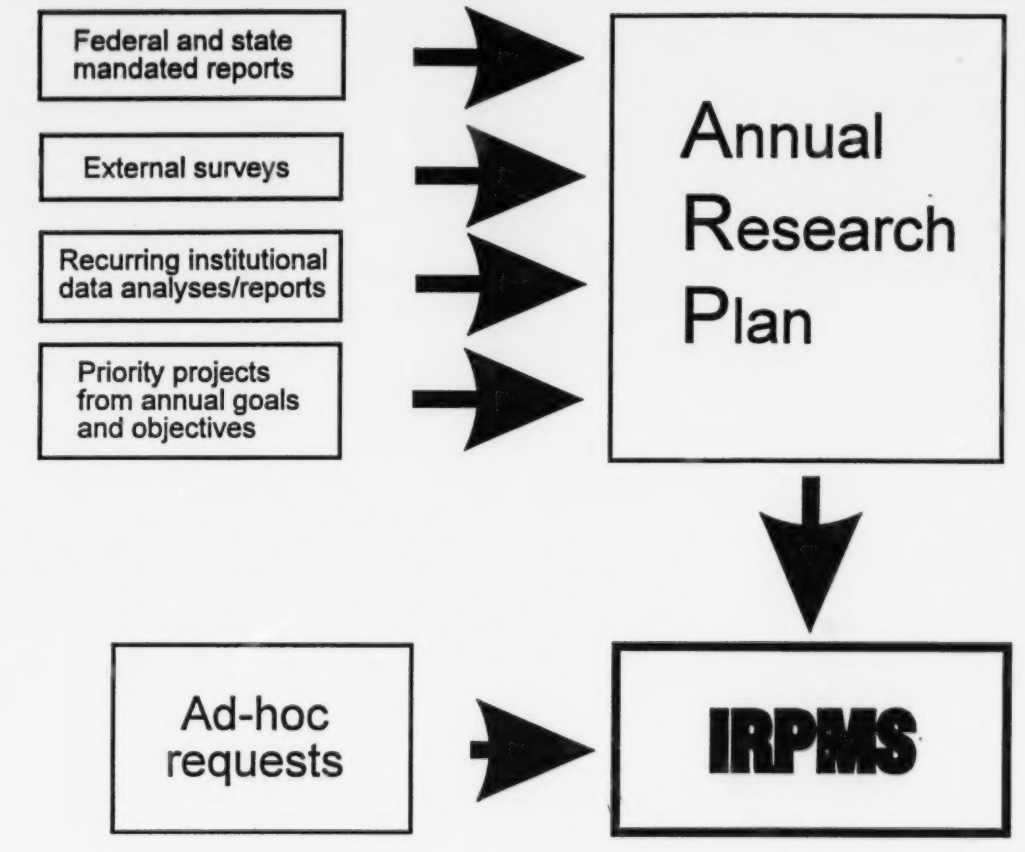
46	**Percent Credit Hours by Core Faculty**	Percent of total student credit hours taught by full-time tenure and tenure-track faculty	Office of Instruction
47	**Standard Load Faculty**	Percent of full-time faculty (excluding department chairs) teaching standard load	Office of Instruction
48	Continuing Education Faculty	Number of continuing education faculty; by program area, sex, and race/ethnicity	Continuing Education Office, PHBR080
49	**Professional Development**	Annual dollars invested in faculty and staff professional development and training	Finance Office
50	FTE Staff per 100 FTE	Ratio of full-time-equivalent staff (excluding faculty) to full-time-equivalent students times 100	Calculated

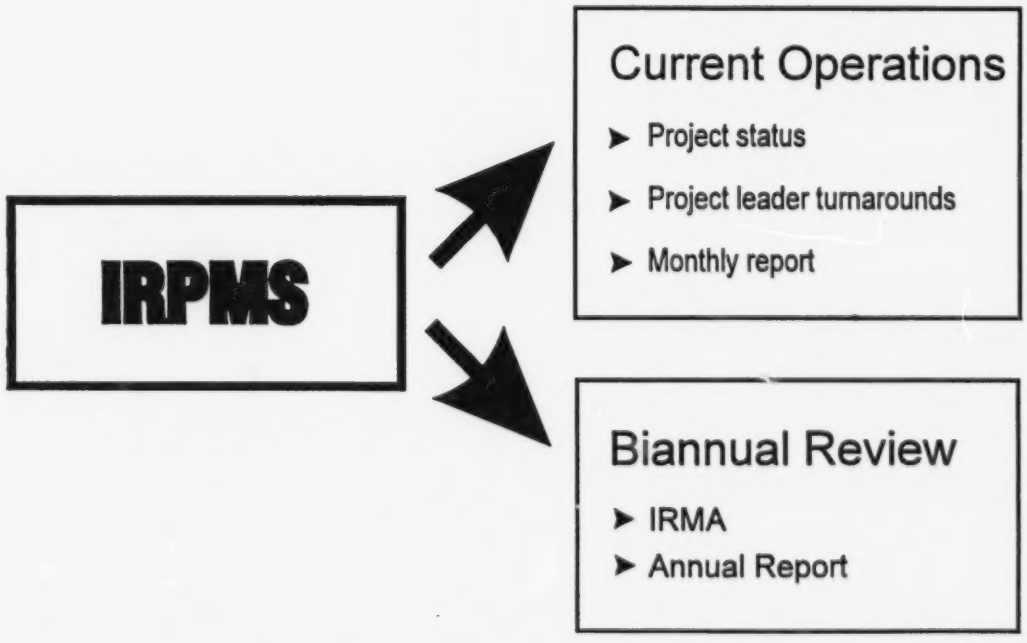
Note: Indicators in **bold** typeface are *primary PMIs* included in routine reports to the college's Board of Trustees and/or in the annual *Institutional Performance Accountability Report* to the Maryland Higher Education Commission.

IRPMS

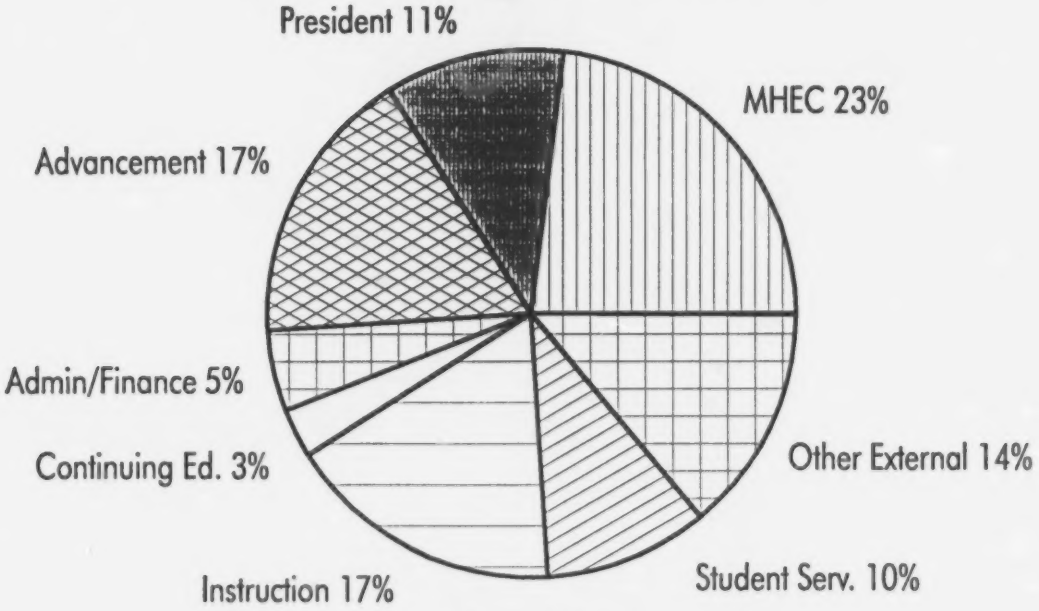
Institutional Research Project Management System

- Project number
- Requestor
- Request date
- Target completion date
- Project title
- Project leader
- Priority
- Status
- Date begun
- Date completed
- Notepad


Federal and state mandated reports
External surveys
Recurring institutional data analyses/reports
Priority projects from annual goals and objectives
Annual Research Plan
Ad-hoc requests
IRPMS


IRPMS
Current Operations
Project status
Project leader turnarounds
Monthly report
Biannual Review
IRMA
Annual Report

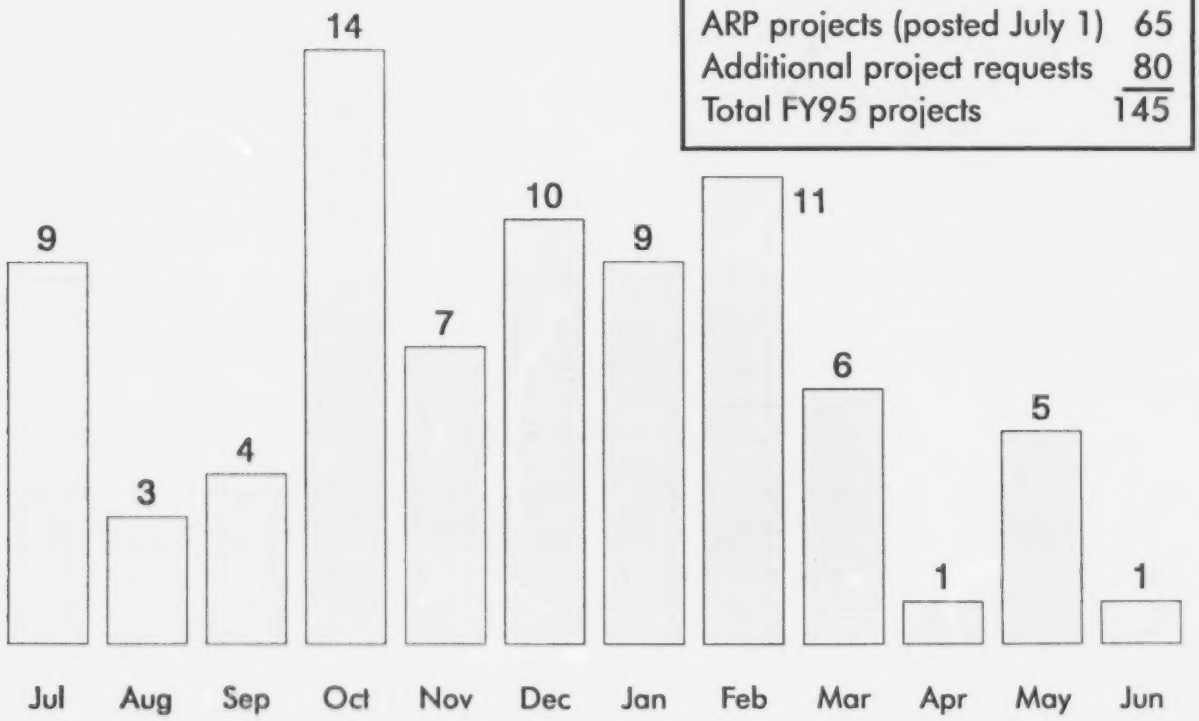
Sources of Project Requests, FY95



N = 145

FY95 Projects by Month of Request

ARP projects (posted July 1)	65
Additional project requests	80
Total FY95 projects	145



Prince George's Community College
Office of Institutional Research and Analysis

Project Status at End of Fiscal Year, FY86-95

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95
Accepted	105	79	132	97	132	117	114	136	129	145
Completed	82	66	108	85	110	98	91	116	92	129
Underway	8	7	6	4	8	5	6	8	9	3
Carried forward	1	3	6	4	8	10	12	7	21	3
Deleted	14	3	12	4	6	4	5	5	7	10
Percent Completed	78%	84%	82%	88%	83%	84%	80%	85%	71%	89%

Productivity Indicators, FY86-95

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95
Publications	33	34	41	34	50	67	37	59	55	64
Presentations	2	4	8	6	8	14	13	8	4	4
Projects completed	82	66	108	85	110	98	91	116	92	129
FTE staff	3.0	3.0	4.5	3.5	4.5	4.5	4.5	4.5	3.5	4.5
Projects/FTE staff	27.3	22.0	24.0	24.3	24.4	21.8	20.2	25.8	26.3	28.7

Prince George's Community College
Office of Institutional Research and Analysis

Publications Summary, FY86 - FY95

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95
Reports to the Board	5	5	5	5	5	4	5	4	7	4
Planning Briefs	4	3	3	7	10	14	4	3	3	13
Enrollment Analyses	6	6	8	6	5	11	6	7	4	7
Market Analyses	4	3	6	0	2	7	3	6	2	7
Needs Assessments	6	2	0	0	1	0	2	0	0	0
Program Evaluations	5	2	5	1	5	2	1	1	3	1
Research Briefs	0	10	6	8	12	10	10	17	24	20
Factbooks	1	1	0	1	0	1	0	1	2	3
Report Subtotal	31	32	33	28	40	49	31	39	45	55
Tech Memos/Chartbooks	2	2	8	6	10	18	6	20	10	9
Total Publications	33	34	41	34	50	67	37	59	55	64

Publications by Topic, FY86 - FY95

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95
Academic programs	11	6	5	1	7	2	3	3	6	2
Aff. Action/climate	1	0	1	2	0	1	0	3	0	0
Budget and finance	2	1	1	2	4	6	6	7	3	11
Developmental educ.	0	0	0	0	1	3	0	8	4	1
Enrollment forecasts	0	1	0	1	8	7	0	0	0	2
Enrollment profiles	6	8	6	5	8	9	3	12	9	12
Environmental scanning	3	2	5	5	4	3	2	3	4	1
Facilities/space use	1	1	1	1	1	5	2	2	3	1
Factbooks	1	1	0	1	0	1	0	1	2	3
Market research	5	3	6	0	2	7	5	9	5	13
Methods/documentation	0	1	2	2	2	4	1	0	1	3
Staffing/employees	1	1	3	1	2	4	1	1	3	3
Student outcomes	2	9	11	13	11	15	14	10	15	12
Total publications	33	34	41	34	50	67	37	59	55	64

PRINCE GEORGE'S COMMUNITY COLLEGE
OFFICE OF INSTITUTIONAL RESEARCH AND ANALYSIS

RESEARCH USER SATISFACTION SURVEY

We strive to provide information that is relevant, timely, clear, and useful to the college community, and to do this in a courteous, responsive, and professional manner . To help us improve our service to you, please rate our performance in terms of these attributes by circling a number from 1 (very poor) to 5 (very good). The higher the number, the better we did.

	Very Poor				Very Good
Relevance: extent to which OIRA addressed your information needs	1	2	3	4	5
Timeliness: extent to which the information was provided in a timely fashion	1	2	3	4	5
Clarity: extent to which the information was communicated clearly	1	2	3	4	5
Usefulness: extent to which the information was useful to you	1	2	3	4	5
Professionalism: extent to which OIRA staff were courteous and responsive	1	2	3	4	5

How could OIRA improve its service?

Additional comments:

PLEASE RETURN TO THE OFFICE OF INSTITUTIONAL RESEARCH AND ANALYSIS, KENT HALL 231. THANKS!

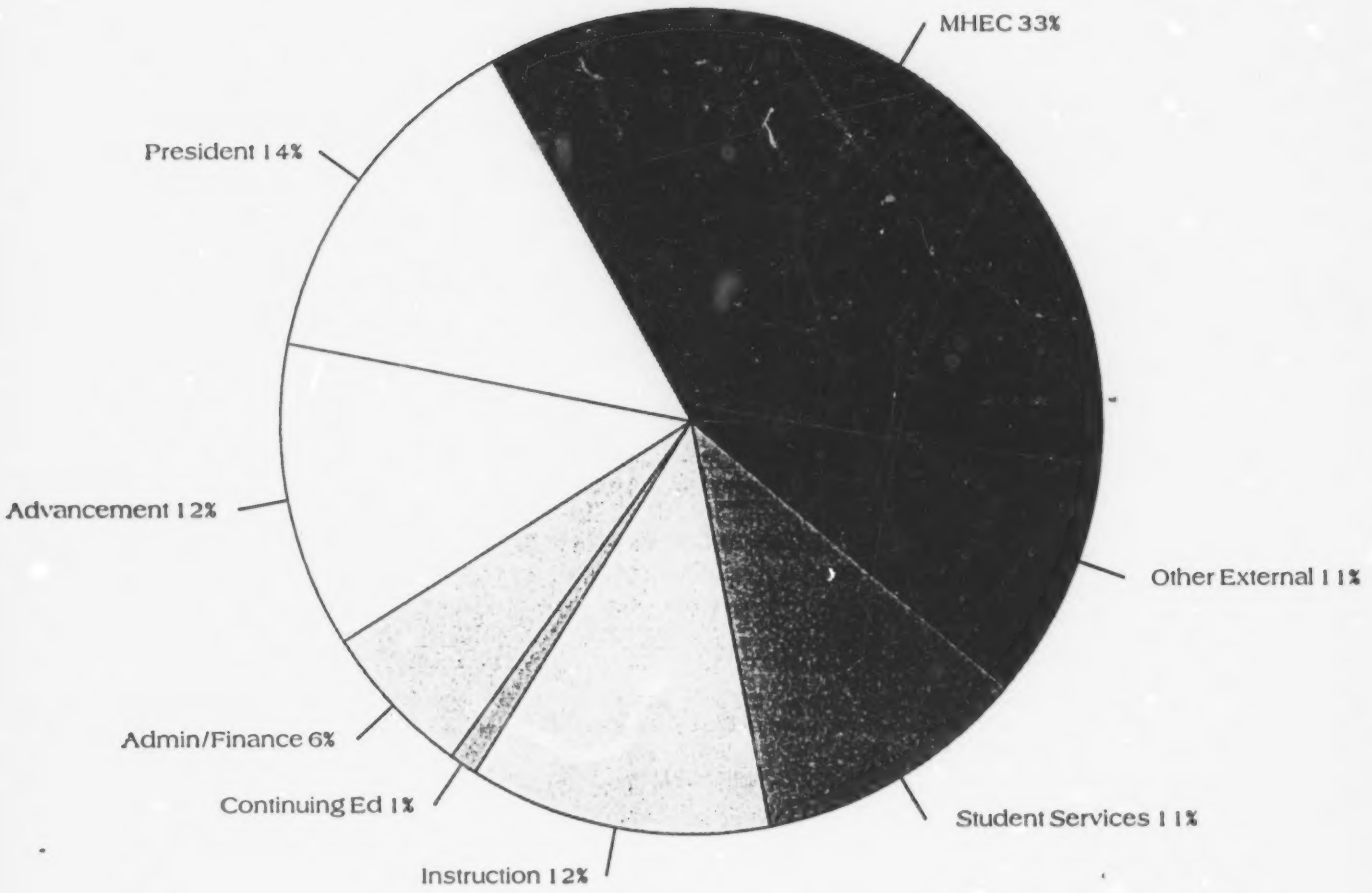
the IRMA Report

INSTITUTIONAL RESEARCH MID-YEAR ASSESSMENT

OFFICE PROJECT STATUS AND STAFF ACHIEVEMENTS
AS OF DECEMBER 31, 1994

Source of Requests

Mid-Year FY95



N = 106

Project Status

	Final FY94	Mid-Year FY95
Accepted	129	106
Completed	92	72
Underway	9	8
Pending	21	23
Deleted	7	3
Percent Completed	71%	68%

FY95 Mid-Year Project Completion

Project Leader	Completed Projects	Priority 1 or 2	Completed by Target Date
Craig	21	21	100%
Karl	19	15	80%
Hersh	21	9	100%
Pat	9	3	100%
Kang	2	0	N.A.
Total	72	48	94%

Publication Status

	Category High	Final FY94	Mid-year FY95
Reports to the Board	7	7	3
Planning Briefs	14	3	7
Enrollment Analyses	11	4	1
Market Analyses	7	2	4
Needs Assessments	6	0	0
Program Evaluations	5	3	1
Research briefs	24	24	11
Factbooks	2	2	2
Report subtotal	49	45	29
TechMemos/Chartbooks	20	10	6
Total Publications	67	55	35

Publication Credits

	Personal High	Final FY94	Mid-Year FY95
Craig	38	26	13
Karl	13	11	5
Hersh	-	-	11
Pat	9	9	5
Kang	-	-	1
Kay	9	3	-
Hossein	4	3	-
Marcia	4	3	-
Total	67	55	35

FY95 Mid-Year Goal Achievement

	Annual Goal	Final FY94	Mid-Year FY95
Total projects completed	100	92	72
Completions/requests ratio	90%	71%	68%
Project completion by due date	100%	78%	94%
Total reports (excluding tech memos)	40	45	29
ERIC publications	10	6	1
Formal presentations	6	4	3
EMI awards	2	0	N.A.

Institutional Research and Analysis
Staff Recognition Program

Team 90

ERIC Publication

The Century Club

Skillbuilder Award

EMI Award

Prince George's Community College
Office of Institutional Research and Analysis

Project Leader Performance Summary, FY95

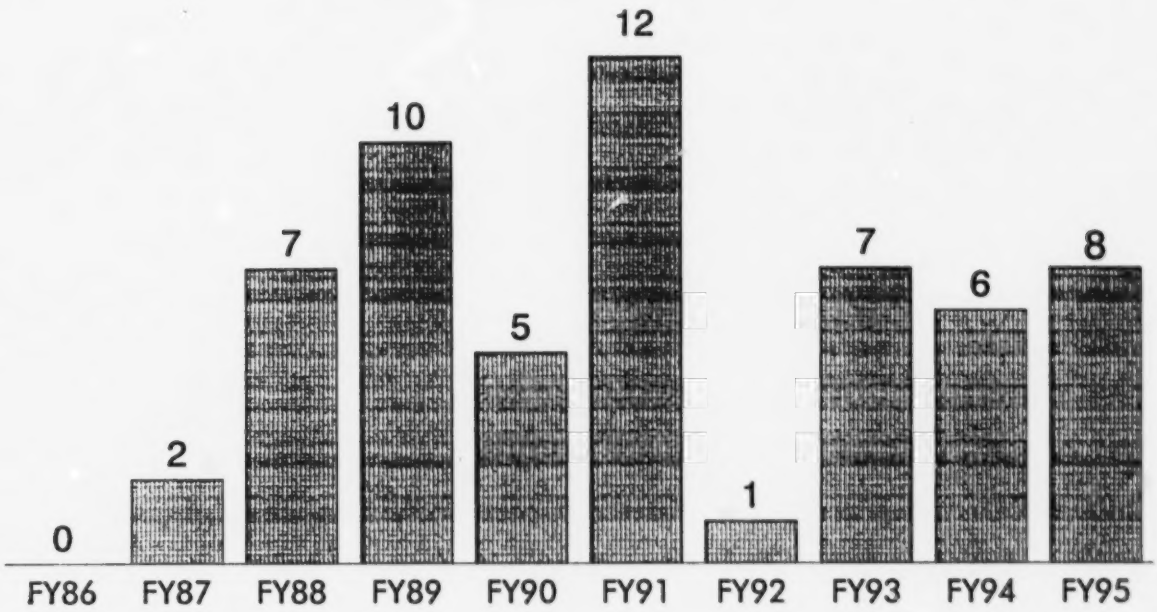
	Projects Assigned for FY95 Completion	Total Projects Completed	Percent Projects Completed	Priority 1 & 2 Projects Assigned	Percent Completed by Target Date	TEAM 90
Alexander	38	38	100%	17	100%	
Clagett	38	37	97%	34	94%	
Diehl	23	22	96%	9	89%	
Boughan	31	30	97%	23	74%	
Chiu	2	2	100%	0	NA	

Publication Credits, FY86-95

	FY86	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95
Clagett	23.0	20.5	22.5	26.5	27.5	38.0	17.5	34.5	25.5	21.0
Alexander	--	--	--	--	--	--	--	--	--	17.5
Boughan	--	--	--	--	3.0	12.5	5.0	7.0	11.0	12.0
Diehl	1.0	1.5	6.5	4.5	6.0	8.5	8.5	7.5	10.0	12.0
Chiu	--	--	--	--	--	--	--	--	--	1.5
Hawthorne	--	1.0	1.0	0.5	4.0	1.0	1.0	1.0	3.0	--
Hosseinzadeh	--	--	--	--	--	--	1.0	4.0	3.0	--
McCoy	8.0	7.5	3.5	2.5	8.5	6.0	2.0	4.5	2.0	--
Hirsch	--	2.0	4.0	--	--	--	--	--	--	--
OIRA Associates	1.0	1.5	3.5	--	1.0	1.0	2.0	0.5	0.5	--
Total	33.0	34.0	41.0	34.0	50.0	67.0	37.0	59.0	55.0	64.0

ERIC Publications

OIRA Reports of Sufficient Quality and Import
to Warrant Inclusion in the ERIC Database



ERIC Publication Credits
FY86 - FY95

	FY95	Total
C. Clagett	4.0	36.0
K. Boughan	3.0	13.5
K. McCoy	-	4.0
P. Diehl	1.0	3.5
R. Huntington	-	1.0
Office total	8.0	58.0

The Century Club

June 1996

369 **Student Outcomes Performance Accountability Report**
(Clagett, November 1988, BT89-2)

338 **Student Outcomes Annual Summary Report**
(Clagett, August 1993, BT94-2)

308 **Employee Perceptions of the Racial Climate at PGCC**
(Boughan, December 1992, RB93-14)

275 **Student Learning Outcomes Assessment Report**
(Clagett, December 1995, BT96-5)

264 **Student Learning Outcomes Assessment Report**
(Clagett, December 1994, BT95-3)

182 **Institutional Factbook**
(Diehl, February 1989, FB89-1)

149 **P.G. County at the Demographic Crossroads**
(Boughan, March 1992, PB92-4)

144 **PGCC Facts: Fourth Edition**
(Diehl, September 1990, FB91-1)

134 **Institutional Factbook**
(Clagett, June 1987, FB87-1)

130 **Student Perceptions of the Racial Climate at PGCC**
(Boughan, July 1992, RB93-1)

122 **Spring 1996 Survey on Student Services**
(Alexander, April 1996, RB96-15)

118 **The PG-TRAK© Manual: Using PGCC's Cluster System**
(Boughan, November 1990, MA91-3)

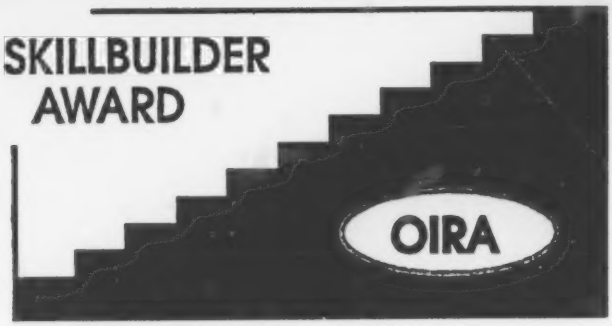
117 **Annual Market Analysis**
(Clagett, February 1996, MA96-4)

117 **P.G. County Business Training Needs Assessment**
(Clagett and Huntington, January 1988, MA88-4)

112 **Campus Retention Committee Progress Report**
(Clagett, March 1996, TM96-15)

110 **Student Right-to-Know Completion Rates**
(Clagett, July 1993, RB94-2)

102 **Community College Transfers to MD Four-year Institutions**
(Clagett and Huntington, June 1990, RB90-11)



Awarded to members of the Office of Institutional Research and Analysis who have substantially upgraded their professional skills and enhanced the capabilities of the office.

FY91	**K. McCoy**	**SAS programming**
FY93	**K. Boughan**	**Microcomputer systems**
FY94	**P. Diehl**	**GIS/mapping software**
FY96	**P. Diehl**	**Multimedia presentations**

EMI Awards

Achievements of
Extraordinary Merit and Impact

FY87	C. Clagett	ENSCAN[87] Environmental Scan
FY88	K. McCoy	Survey of Non-returning Students
FY89	C. Clagett	Student Outcomes Report
FY90	K. Boughan	Nursing Program Evaluation
	P. Diehl	Desktop Publishing Design and Production
FY91	K. Boughan	PG-TRAK Lifestyle Cluster Analysis System
	C. Clagett	Assessing County Support
	P. Diehl	PGCC Facts: Fourth Edition
	K. McCoy	Analysis of Developmental Education
FY92	K. Boughan	P.G. County at the Demographic Crossroads
FY93	K. Boughan	Campus Racial Climate Studies
FY95	K. Boughan	Longitudinal Cohort Tracking System

Research Impact: Examples

Annual Market Analysis

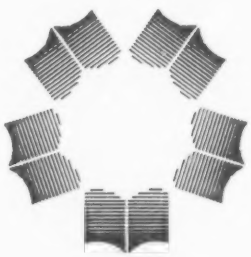
Student Learning Outcomes Assessment Report

Assessing County Support for Maryland Community Colleges

Maryland Community College Workforce Training Survey

County Council Budget Presentation

Annual Market Analysis



PRINCE GEORGE'S
COMMUNITY COLLEGE

Report MA96-4

February 1996

73

PRINCE GEORGE'S COMMUNITY COLLEGE
Office of Institutional Research and Analysis

ANNUAL MARKET ANALYSIS
Market Analysis MA96-4
February 1996

Overview

The Office of Institutional Research and Analysis has prepared this *Annual Market Analysis* to assist the college's Marketing Council and enrollment management team in planning recruitment and promotional campaigns aimed at increasing credit student enrollment. Included in this report are profiles of current students, findings from a survey of fall 1992 entrants, analyses of the college's share of the higher education market, identification of major competitors for credit students, reasons why some applicants fail to enroll, a detailed analysis of the high school market, findings from a summer 1995 telephone survey of county adults, and current enrollment objectives adopted by the college's Marketing Council. The research office welcomes suggestions as to what might be included in future credit student market analyses.

This report draws upon the major findings of several market research studies conducted by the Office of Institutional Research and Analysis over the past few years. For readability and brevity, many details, including discussions of methodologies and sources, have been omitted. Readers desiring more information than provided in this summary report may request complete copies of the original reports, which are listed in the *FY86-95 OIRA Publications List* available from OIRA at x0723.

Current Student Profile

This section of the *Annual Market Analysis* presents recent student enrollment data to describe who our current students are. After an overview of the magnitude of our enrollment, in credit and noncredit courses, the analysis describes selected credit student characteristics.

Number of Students Served

How many students attend classes at PGCC during the year? The Office of Institutional Research and Analysis has conducted an analysis each year since FY87 that answers this question. The analysis identifies every individual that is enrolled in

a credit or noncredit course (as of the official statistical reporting date) during a given fiscal year. Credit and noncredit files are merged by student identification number so an unduplicated count can be calculated. Each student is classified as having taken only credit, only noncredit, or both credit and noncredit classes during the year. Summing all three mutually exclusive categories yields the total number of students served during the year. Summing the "credit only" and "both credit and noncredit" categories yields the total number of students enrolling in credit courses during the year. A similar calculation provides the total number of students attending noncredit courses. Annual unduplicated headcount figures for the past nine fiscal years are shown in the following table:

Annual Unduplicated Headcount, FY87-95

Year	Credit Only	Noncredit Only	Both C & NC	Total Credit	Total Non-Cred	Total Headcount
FY95	16,474	17,471	1,155	17,629	18,626	35,100
FY94	17,267	16,975	1,155	18,422	18,130	35,397
FY93	17,968	17,063	1,220	19,188	18,283	36,251
FY92	18,151	18,046	1,258	19,409	19,304	37,455
FY91	17,993	17,952	1,287	19,280	19,239	37,232
FY90	18,113	19,878	1,394	19,507	21,272	39,385
FY89	17,957	17,993	1,431	19,388	19,424	37,381
FY88	17,599	18,869	1,337	18,936	20,206	37,805
FY87	17,527	17,852	1,167	18,694	19,019	36,546

Ninety-six percent (or 16,995) of the 17,629 students taking credit classes during fiscal year 1995 were residents of Prince George's County. Residents of other Maryland jurisdictions numbered 386, while out-of-state residents totaled 248. Comparing the number of county residents attending the college with the most recent county population estimates released by the Maryland Office of Planning permits calculation of enrollment rates by age. County residents in their twenties had the highest rate of PGCC enrollment, with over six percent attending the college. Overall, 2.8 percent of Prince George's County residents age 15 or older enrolled in a credit course at PGCC at some time between July 1, 1994 and June 30, 1995.

Enrollment of County Residents at PGCC in Credit Courses, by Age Group, FY95			
Age	County Population	Attended PGCC	Enrollment Rate
15 - 19	49,187	2,185	4.44%
20 - 29	129,146	8,161	6.31%
30 - 39	145,834	3,841	2.63%
40 - 49	118,971	1,917	1.61%
50 - 59	77,450	471	0.60%
60 and older	83,230	420	0.50%
Total 15+ years	603,818	16,995	2.81%

Demographic Characteristics

Sixty-three percent (11,050 students) of the 17,629 students taking credit courses at PGCC during fiscal year 1995 were women. Women have accounted for over three-fifths of the college's credit students for several years.

Students of African descent accounted for 62 percent of the credit students in FY95. The proportion of credit students at PGCC of African descent has been increasing steadily. African Americans became a majority in FY92. Prince George's Community College enrolls more African American students than any other college in Maryland.

White students accounted for 29 percent of the college's credit students in fiscal year 1995. Whites last accounted for a majority of the college's credit students in FY88. Six percent of the college's students in FY95 were of Asian descent. Hispanics comprised three percent, and Native Americans less than one percent.

Nearly half (48 percent) of the college's credit students in FY95 were 20 to 29 years of age. People in the thirties accounted for an additional 23 percent. Together, students in their twenties and thirties comprised over 70 percent of the college's credit enrollment. Students under 20 years of age accounted for 13 percent of the college's headcount enrollment. Fourteen percent of PGCC's credit students were in their forties or fifties; seniors (age 60+) accounted for the remaining two percent.

Demographic Characteristics of Credit Students Annual Unduplicated Headcount, FY92-95				
	FY92	FY93	FY94	FY95
Female	11,977	11,928	11,346	11,050
Male	7,432	7,260	7,076	6,579
African	10,544	10,935	10,847	10,849
Asian	991	1,061	1,092	1,046
Hispanic	427	435	442	479
Native American	94	114	123	120
White	7,353	6,643	5,918	5,135
Under 20 years	2,217	2,095	1,992	2,248
20 - 29	10,223	9,850	9,250	8,426
30 - 39	4,077	4,284	4,220	4,008
40 - 49	1,909	1,989	2,015	2,007
50 - 59	500	522	535	501
60 and older	483	448	410	439
Total	19,409	19,188	18,422	17,629

Recent Fall Enrollment Trend

The college's highest fall headcount occurred in 1982, when PGCC enrolled 15,354 credit students. Since then, despite a growing county population, credit headcount has fluctuated around an average of about 13,150 students. Fall headcount enrollment has declined the last three years. Fall 1995 headcount of 12,050 was the lowest at the college since 1976.

Accompanying the overall trend of declining headcount, the average number of credit hours taken by students has declined. In 1982, the college's record student headcount took an average of 7.73 credits, generating 118,654 credit hours. The average student load has generally declined since then. After falling to an all-time low of 7.18 in fall 1994, the average credit hour load rose to 7.25 in fall 1995. As of the

Fall 1995 official third week statistical date, the college enrolled 12,050 students who generated 87,422 credit hours. Fall credit enrollment data for the past six years is displayed in the following table:

Headcount, Credit Hours, and Average Load, Fall 1990-95						
	1990	1991	1992	1993	1994	1995
Headcount	13,087	13,307	13,318	12,955	12,201	12,050
Credit Hours	96,960	97,055	96,762	94,119	87,544	87,422
Average load	7.41	7.29	7.27	7.27	7.18	7.25

The number of full-time students (carrying 12 or more credits) increased 1.6 percent between fall 1994 and fall 1995. Students carrying 6 to 11 credits essentially were unchanged in number, while the number of students taking just one class declined:

Change in Credit Hour Loads, Fall 1994-95				
Credit Hour Load	Fall 1994	Fall 1995	Number Change	Percent Change
1 - 3	3,238	3,038	(200)	-6.2%
1 - 6	6,452	6,316	(136)	-2.1%
1 - 11	9,306	9,110	(196)	-2.1%
6 - 11	4,558	4,550	(8)	-0.2%
12 +	2,895	2,940	45	1.6%

Student Attendance Patterns

Courses on the Largo campus are most popular among PGCC students, with nearly nine in ten students attending at least one class on the main campus. Slightly over half of the college's credit students attend at least one weekday class at Largo. Evening classes on campus have been attended by 36-37 percent of PGCC's credit students the last two fall terms. One in every six PGCC students enrolled in an extension center course. Three to four percent of the college's students take telecredit courses in the fall.

The following table shows the number of students in fall 1994 and fall 1995 taking courses by location and time of day. Since student schedules may include more than one type of course, the category totals do not sum to the total headcount and percents do not add to 100.

Credit Students by Course Location and Time				
Location and Time	Number of Students		Percent of Students	
	Fall 94	Fall 95	Fall 94	Fall 95
Any Largo Courses	10,620	10,669	87%	89%
Largo Day	6,481	6,469	53%	54%
Largo Saturday	606	659	5%	5%
Largo Weekend	591	588	5%	5%
Largo Evening	4,392	4,441	36%	37%
Any Extension	2,039	1,890	17%	16%
Extension Day	101	118	1%	1%
Extension Saturday	80	141	1%	1%
Extension Weekend	162	200	1%	2%
Extension Evening	1,752	1,539	14%	13%
Telecredit	416	481	3%	4%
Total headcount	12,201	12,050	100%	100%

Summer Session Attendance

The majority of students attending summer sessions are continuing their studies from the prior spring. About one in ten summer students are new to college. Readmits account for 15 to 20 percent of summer students, similar to the proportion experienced in fall and spring terms. Summers differ from fall and spring in the proportion of students who are new transfers to PGCC. Students new to the

community college who have attended college elsewhere account for 14 to 18 percent of summer session students, compared to only 11 percent of fall students and 7 percent of spring students.

Entry Status of Summer Session Students
Summer Sessions 1992 through 1995
Number of Students

Entry Status	1992		1993		1994		1995	
	I	II	I	II	I	II	I	II
Continuing from Spring	1,724	1,384	1,687	1,416	1,729	1,199	1,529	1,290
New Transfers	408	428	470	423	425	358	445	415
Readmitted Students	624	341	616	364	590	315	560	360
First-time any College	261	250	197	187	217	196	268	241
Headcount	3,017	2,403	2,970	2,390	2,961	2,068	2,802	2,306

Entry Status of Summer Session Students
Summer Sessions 1992 through 1995
Percent of Headcount

Entry Status	1992		1993		1994		1995	
	I	II	I	II	I	II	I	II
Continuing from Spring	57%	58%	57%	59%	58%	58%	55%	56%
New Transfers	14%	18%	16%	18%	14%	17%	16%	18%
Readmitted Students	21%	14%	21%	15%	20%	15%	20%	16%
First-time any College	9%	10%	7%	8%	7%	10%	10%	11%
Headcount	3,017	2,403	2,970	2,390	2,961	2,068	2,802	2,306

Level of College Preparedness

Seven of every ten students entering PGCC in Fall 1995 who completed the placement test battery in all three skill areas (reading, English composition, and mathematics) had test scores indicating a need for remediation in at least one area. A fifth of the tested students needed remediation in all three areas:

Remedial Needs of Fall 1995 Entrants Tested in All Three Skill Areas		
Tested in all three areas	1,866	100%
No remediation needed	555	30%
Remediation needed	**1,311**	**70%**
In one area	605	32%
In two areas	313	17%
In three areas	393	21%

The proportion of students needing remediation in at least one area was 70 percent, down two percentage points from fall 1994:

Percent of Entering Students Tested in All Three Skill Areas Needing Remediation in at Least One Area		
	Tested in All Three Skill Areas	Percent Needing Remediation
Fall 1995	1,866	70%
Fall 1994	1,800	72%
Fall 1993	1,913	70%
Fall 1992	1,841	71%
Fall 1991	1,923	66%
Fall 1990	2,081	60%

Since 1992, marking the implementation of the Descriptive Tests of Language and Mathematics Skills as the college's placement test battery (replacing the Comparative Guidance and Placement Tests), mathematics has been the area of greatest remedial need among entering students. (At the time of test crossover from

the CGP to the DTLS tests, an effort to establish equivalent threshold scores for determining the need for remediation was made based on a regression analysis of test scores of a pilot group of students who had taken both test batteries. The process was different for mathematics. A committee of math faculty reviewed the new DTMS test, item by item, to determine what skills should be required for students entering math classes with an algebra pre-requisite. Thus, the new threshold for mathematics reflects a changed standard.)

The percentage of entering students needing remediation in mathematics declined from 65 to 61 percent in fall 1995. The proportion of students needing developmental reading has been declining steadily, though modestly, over the past four years. The percentage of new students needing developmental English was unchanged from last year:

Percent of Students Tested in Each Skill Area Needing Remediation, Fall 1992-1995

	1992	1993	1994	1995
Mathematics	60% (1,996)	57% (2,090)	65% (1,963)	61% (2,034)
Reading	35% (1,919)	34% (2,029)	32% (1,954)	31% (1,988)
English	36% (1,935)	33% (2,030)	35% (1,887)	35% (1,937)

It is clear, given current score cutoffs, that mathematics is the skill area that entering students are most deficient in. Course pass rates support this, as classes in mathematics, and courses needing mathematics such as chemistry, have traditionally been the most difficult for PGCC students.

Student Incomes

The research office is frequently asked about the incomes of PGCC students. Since the college has not routinely required this information in its application, no long-term, consistent trend data exist. The best data available are described below.

Survey of Fall 1992 Entrants. A four-page questionnaire was mailed in October 1992 to all 2,730 first-time students enrolled in fall 1992. The questionnaire included a question "What is the approximate total pre-tax income of the people in your

household? Include your parents' or spouse/partner's income if they live with you. Do not include the income of non-family roommates." The following table presents a percentage distribution of the responses from the 949 students returning the survey:

Total Household Income Fall 1992 Entering Students (Self-reported Survey Data, N=949)	
Income Range	Percent
Less than $5,000	5%
$ 5,000 - 9,999	3%
$10,000 - 19,999	12%
$20,000 - 29,999	17%
$30,000 - 39,999	16%
$40,000 - 49,999	14%
$50,000 - 74,999	22%
$75,000 - 99,999	7%
$100,000 and above	3%

Application Data, 1992-1994. For approximately two years, the college did ask for household income on its application. The data were separated from the rest of the application and not entered into the student information system on confidentiality grounds. The tear-off sheets were forwarded to institutional research for file creation and analysis. This procedure precluded identification of those applicants actually enrolling at the college. Thus the data in the following table reflect *applicants* to the college, including people who never attended.

Total Household Income PGCC Applicants, 1992-Summer 1994 (N = 8,572)	
Income Range	Percent
Less than $6,000	7%
$ 6,000 - 11,999	6%
$12,000 - 17,999	8%
$18,000 - 23,999	11%
$24,000 - 29,999	12%
$30,000 - 35,999	11%
$36,000 - 41,999	9%
$42,000 - 47,999	6%
$48,000 - 53,999	8%
$54,000 - 59,999	6%
$60,000 and above	18%

IRAHE Survey, Spring 1994. In spring 1994, Prince George's Community College participated in a national research project on the circumstances, aspirations, and needs of adult students. The study was designed and coordinated by the Institute for Research on Adults in Higher Education (IRAHE), located at the University of Maryland University College. The IRAHE survey instrument was mailed to 4,015 PGCC students enrolled in spring 1994. The survey achieved a 30 percent adjusted response rate. The percentage distribution in the following table reflects weighted responses, to be more representative of the college's total student population. These data are the most recent on PGCC student incomes. The question wording was "What is your household annual income before taxes?"

Total Household Income IRAHE Survey of Spring 1994 Students (Self-reported Survey Data, N = 1,083)	
Income Range	Percent
Less than $5,000	7%
$ 5,000 - 14,999	11%
$15,000 - 24,999	17%
$25,000 - 39,999	23%
$40,000 - 59,999	23%
$60,000 and above	19%

Financial Aid Needs

In these times of declining public support for higher education, more of the cost of a college education is being shifted to the student consumer in terms of higher tuition and fees. Financial aid, in the forms of grants, loans, scholarships, and student employment, can ease the burden for some students. In FY95, nearly a quarter of the college's students received some form of aid:

Percent of Students Receiving Financial Aid, FY92-95			
Year	Annual Unduplicated Headcount	Financial Aid Recipients	Percent Receiving Aid
1991-92	19,409	3,468	17.9%
1992-93	19,188	3,468	18.1%
1993-94	18,422	4,046	22.0%
1994-95	17,629	4,270	24.2%

Total financial aid in FY95 exceeded five million dollars:

Financial Aid Awarded in Fiscal Years 1992-95			
Year	Financial Aid Recipients	Number of Awards	Total Dollar Amount Awarded
1991-92	3,468	3,886	$3,588,738
1992-93	3,468	4,521	4,575,099
1993-94	4,046	4,615	4,915,066
1994-95	4,270	4,880	5,305,715

Characteristics of First-time College Students Entering PGCC

As an open-admissions college emphasizing ease of accessibility, PGCC asks for a minimum of information during its application process. As a result, data available on the student information system is limited to basic demographics and student attendance descriptors. To learn more about student goals, motivations, intentions, academic background, and home environment, OIRA conducted a survey of entering students in fall 1992. Though now somewhat dated, this survey provides the most comprehensive look available at the characteristics of first-time students entering the college.

Questionnaires were mailed in October 1992 to all 2,730 first-time students enrolled in fall 1992. A total of 949 students responded; adjusting for undeliverables, the overall response rate was 35 percent.

Goals and Plans

Half of the respondents said they intended to earn an Associate degree from PGCC. A third indicated they planned to take courses for transfer but did not plan on earning an award from the college. Twelve percent had no credential in mind, with the remaining three percent pursuing a certificate from PGCC:

What Do You Plan to Do at PGCC?	
Earn an Associate degree from PGCC	51%
Take courses for transfer without earning a PGCC award	34
Take courses/not working toward a degree or certificate	12
Earn a one-year certificate from PGCC	3

When asked why they were taking classes at PGCC, two-fifths of the respondents said they were preparing to transfer to a four-year college. A fifth were preparing for a career or job change. Eleven percent were preparing for a first job or career; a similar percentage was attending to update skills for a current job. Eight percent stated that they were exploring their options, trying to decide what they wanted to do. Other reasons were cited by less than five percent of the respondents:

Why Are You Taking Classes at PGCC?	
Prepare for transfer to a four-year college	42%
Prepare for a career or job change	22
Prepare for first job or career	11
Update skills for current job/qualify for promotion	11
Explore options, decide what I want to do	8
Help me start or manage my own business	3
Learn for its own sake, know more about the world	2
Learn more about a hobby or personal interest	1
Family/friends expected me to attend college	<1

The typical graduate takes more than four years to earn a "two-year" Associate degree. Most students who transfer will do so before earning a degree from PGCC. How long do entering students anticipate going to the community college? Slightly over half said they planned to attend PGCC for two years. Over a fifth expected to be at the college longer. The rest anticipated shorter stays, including 7 percent who expected to attend only one term:

How Long Do You Plan to Attend PGCC?	
Two years (through Spring 1994)	53%
Three to four years	20
One year (through Spring 1993)	17
One semester (Fall 1992 only)	7
Five years or more	3

Students are asked to identify the curriculum they plan to study at the college on their application. The college uses this identified major field in enrollment analyses and reporting to the state. How sure of their choices are new students just beginning their college careers? Sixty-five percent of the respondents indicated that they were definitely committed or at least fairly sure of their curriculum choice. Over a quarter, however, expressed less certainty about their choice or stated that they were undecided:

How Sure Are You of Your Choice of Major?	
Definitely committed to my PGCC program choice	34%
Fairly sure it's the right field for me	31
I am undecided about/have not chosen a curriculum	15
Unsure of my choice, likely to change my mind	12
Taking courses only/not interested in a degree program	8

Current Socio-economic Status

At the time of the survey, slightly over half of the students lived with one or both of their parents. A fifth lived with their spouse, with or without children. Approximately one in 15 students either lived alone, with one or more children but with no spouse or partner at home, or with unrelated housemates. Nine percent had other household arrangements, such as living with relatives other than their parents, spouses, or children:

Which Statement Describes Your Living Arrangement Now?	
I live with both parents	32%
I live with one parent	21
I live with my spouse (with or without children)	19
I live alone	7
I live with my child(ren)--no spouse/partner present	6
I live with person(s) not related to me	6
Other	9

Twenty-seven percent of the respondents had children under their care. Half of these were responsible for one child, a third had two children, with the remainder caring for three or more.

Forty-five percent of the respondents were employed full-time when surveyed. Twenty-eight percent held part-time jobs. Fully a fifth were unemployed and seeking a job:

What Is Your Current Employment Status?	
Employed full-time (30 or more hours per week)	45%
Employed 10 to 29 hours per week	26
Unemployed but seeking a job	20
Unemployed, not seeking a job (includes homemaker, retired)	7
Employed less than 10 hours per week	2

Half of the respondents reported household incomes below $40,000, compared to a Prince George's County median of $43,000. The reported incomes encompassed a wide range, with five percent claiming incomes below $5,000 annually and three percent claiming incomes of at least $100,000. A majority fell into the middle income categories, with annual household incomes between $30,000 and $75,000. The most affluent respondents were those living with both natural parents. The least affluent were those living with their children with no spouse or partner present, those living with person(s) not related to them, and those living alone.

Academic Background

About one fourth of the students who graduate from Prince George's County public high schools will attend PGCC within ten years of their graduation. The college is the most popular entry point into higher education for county residents. Yet nearly half of the respondents were not county high school graduates, and fully 62 percent had attended other school systems in grades K-8:

Where Did You Go to Elementary and High School?		
	Grade K-8	High School
Prince George's County public schools	38%	51%
Other public schools (non PG/DC)	25	23
Private schools	16	11
Washington, D.C. public schools	9	7
Combination/other schooling	12	7

Half of the respondents reported spending three hours or less a week on homework when they were in high school. Four percent claimed to study more than 15 hours a week. Students from private high schools reported spending more time on homework than those who had attended public schools. Forty percent of the private school graduates reported spending at least 7 hours a week on homework, compared to less than 16 percent of the Prince George's County public high school graduates.

How Much Time Did You Spend on Homework Each Week?	
None	2%
1 hour or less (per week)	14
2 to 3 hours	35
4 to 6 hours	28
7 to 15 hours	18
More than 15 hours	4

Most respondents reported getting B's and C's in high school. Thirty percent claimed to have been A and B students in high school. Only seven percent admitted to receiving mostly C's and D's or lower:

What Grades Did You Get in High School?	
Mostly A's	5%
A's and B's	25
Mostly B's	16
B's and C's	35
Mostly C's	13
C's and D's	6
Mostly D's or lower	1

Recent national studies have suggested that mathematics achievement in high school is a significant predictor of college attendance and success. Placement test results at the college indicate that mathematics is the skill area entering students are most likely to be deficient in. For example, three-fifths of the Fall 1992 entrants tested in mathematics earned scores indicating a need for developmental mathematics. Demographic groups most in need of remedial mathematics included African Americans (71 percent needing) and women (65 percent). Students of all ages were found to need mathematics assistance; indeed, the need increased with age. In some cases, the skill deficit was severe. In recent years, as many as a fourth of those needing developmental mathematics have been placed in basic arithmetic. Less than one in seven of the students identified as needing remedial mathematics complete the appropriate developmental math courses within five years of entry to PGCC.

Analyses of course pass rates at the college reflect the relatively poor mathematics abilities of PGCC students. Courses in developmental math and credit math consistently have among the lowest pass rates on campus.

The survey asked respondents to indicate the mathematics courses they had passed in high school. A fifth had not completed a single algebra course. Seventeen percent had completed only one year of algebra. Only four out of five entrants to the college had completed at least one year of algebra, and only half had had two years of algebra. At the opposite extreme, 11 percent had had some calculus.

What is the Highest Math Course You Passed in High School?	
General mathematics	11%
Consumer mathematics	1
Business mathematics	8
Algebra I	17
Geometry	14
Algebra II	22
Trigonometry	16
Pre-calculus/elementary analysis	8
Calculus	3

A final indicator of academic background included in the survey was an associational one. Students were asked what proportion of their friends went to college immediately after high school. Less than a third of the respondents reported that all or almost all of their friends had gone to college. Nearly half of the respondents indicated that less than half had done so. Fifteen percent said that few or none of their friends had gone to college:

What Proportion of Friends Went Directly to College?	
None/few	15%
Some, but less than half	32
One half or more	25
All/almost all	28

Socio-cultural Background

The survey included a number of questions concerning the students' lives while they were growing up. The purpose of these items was to gain a greater understanding of who our students were, and, in later studies, to explore whether these background characteristics were related to student achievement at the college.

English was the first language learned by 88 percent of the respondents. Nearly four percent were raised in Spanish-speaking homes. The remaining eight percent first learned to speak a language other than English or Spanish. Thirty-eight other languages were identified. Fourteen respondents specified native African languages, such as Amharic and Yoruba. Twelve cited Tagalog or other Filipino languages. French was the first language of 11 respondents. Indian languages such as Gujarati were the native languages of eight respondents. Other languages cited by multiple respondents included Korean, Chinese, Urdu, Italian, and Vietnamese.

Three-fifths of the respondents lived with both natural parents when they were growing up. Thirty percent lived with one parent.

What Were Your Living Arrangements Growing Up?	
I lived with both natural parents	61%
I lived with one of my parents	30
I lived with other relatives (aunt, grandparents, etc.)	5
I lived with foster parent(s)/guardian(s)	1
Other	3

Majorities of both the mothers and the fathers of the respondents had never attended college. Indeed, for two-fifths of the respondents, neither parent had attended college. Thus two in five were first-generation college students. At the opposite extreme, 15 percent of the respondents had at least one parent with a graduate or professional degree.

What is the Highest Education Your Parents Attained?		
	Mother	Father
Less than high school diploma	16%	20%
High school graduate	39	34
Some college attendance	21	18
Two-year college degree	8	6
Four-year college degree	9	10
Graduate or professional degree	8	13

Respondents were asked to indicate the occupations of their mother and father. Respondents reported a wide range of jobs for both mothers and fathers:

What Type of Work Do Your Mother and Father Do?		
	Mother	Father
Executive/administrative/managerial	8%	12%
Professional specialty occupations	4	11
Service worker	11	7
Mid-level government worker	7	6
Machinist/mechanic	2	6
Small business owner	2	6
Carpenter/electrician/plumber/HVAC	<1	6
Construction worker/laborer	<1	6
Truck/bus/taxi driver	0	6
Military service	<1	5
Administrative support/clerical	10	4
Technicians, including health	4	3
Cashier/salesperson	5	2
Schoolteacher/admin./counselor	5	2
Farmers/forestry worker	1	2
Homemaker (full-time)	13	<1
Secretary/administrative assistant	10	<1
Nurse	8	<1
Other blue collar occupations	5	6
Other white collar occupations	2	3

Among the professional specialty occupations, engineers and computer analysts were most prevalent. Custodians, janitors, child care workers, security guards, and food

service workers were most common among the service occupations. Engineering technicians, drafters, and radiographers were the most often cited technician-level occupations. Thirteen percent of the respondents reported that their mothers were full-time homemakers.

To add to the college's knowledge of student backgrounds, the survey included a series of behavioral questions relating to the respondents' lives while they were growing up. Respondents were asked to indicate whether a statement was very true, somewhat true, or not true about them when they were growing up.

How True Was Each Statement About You?			
	Very True	Somewhat True	Not True
I had regular chores to do	67%	26%	8%
My parents made sure I did homework	59	34	7
I had a quiet place to study at home	39	48	14
My home was filled with books	38	48	14
I could watch as much TV as I wanted	27	40	33
I was read to a lot as a child	26	46	28
Good time more important than grades	20	44	36
Family never expected me to go to college	10	21	69
I could stay out as late as I wanted	8	22	70

All of these family and home characteristics were related, at least moderately, and in the expected way, to the respondents' self-reported high school grades. For example, respondents indicating their home was filled with books and that they were read to a lot as a child reported better grades in high school than those from less literary homes. Similarly, respondents who said that their television viewing was restricted and who had a quiet place to study also claimed higher grades in school.

Market Share Analysis

What proportion of Prince George's County residents attending college in Maryland attend Prince George's Community College? Analyses by MHEC based on student enrollment files submitted by each institution provide answers to such questions. In fall 1994, 44 percent of the residents of Prince George's County attending a Maryland college or university as an undergraduate attended PGCC. The college's undergraduate market share had declined slightly from prior years. Higher proportions of the residents of Anne Arundel, Baltimore, and Montgomery counties were enrolled at local community colleges. For example, 55 percent of the residents of Baltimore County attending a state college in fall 1994 were enrolled at Catonsville, Dundalk, or Essex community college. Anne Arundel Community College had the largest market share of county undergraduates among the four counties reviewed:

Share of County Residents Enrolled as Undergraduates at a Maryland College or University Attending County Community College, Fall 1990-94

County	1990	1991	1992	1993	1994
Prince George's	45.4	45.4	45.9	45.5	44.1
Anne Arundel	59.7	59.6	58.6	59.6	58.8
Baltimore	55.8	56.7	55.8	55.6	55.2
Montgomery	56.8	57.7	57.6	57.9	57.7

Prince George's Community College enrolled 35 percent of the Prince George's County residents entering a Maryland college or university as a first-time, full-time freshmen in fall 1994. This was down nearly five percentage points from the prior fall. The community college share of first-time, full-time freshmen was down at the other three counties, but the decline was less severe and the community college share notably larger. For example, Anne Arundel Community College enrolled 57 percent of the new full-time freshmen in fall 1994, down from 60 percent in fall 1993.

Share of County Residents Enrolled as First-time Full-time Freshmen at a Maryland College or University Attending County Community College, Fall 1990-94					
County	1990	1991	1992	1993	1994
Prince George's	43.2	41.0	39.9	40.3	35.4
Anne Arundel	60.2	61.2	58.2	60.3	57.2
Baltimore	50.7	51.7	50.7	49.3	49.1
Montgomery	52.7	56.1	52.4	52.9	50.6

The college's market share among all full-time undergraduates attending a Maryland college or university in fall 1994 was 24 percent. Community colleges in the other three jurisdictions had full-time student market shares at least 10 percentage points higher.

Share of County Residents Enrolled as Full-time Undergraduates at a Maryland College or University Attending County Community College, Fall 1990-94					
County	1990	1991	1992	1993	1994
Prince George's	26.6	25.7	25.6	25.9	23.9
Anne Arundel	39.4	38.7	38.7	37.9	36.8
Baltimore	34.5	35.7	36.3	37.1	36.0
Montgomery	35.8	35.0	35.9	35.7	34.8

Three of every five Prince George's County residents attending a Maryland college or university part-time in fall 1994 attended PGCC. The college's share of the part-time undergraduate market has been relatively stable. Over two-thirds of the residents of Anne Arundel, Baltimore, and Montgomery counties attending Maryland schools as part-time undergraduates attended community colleges in their county of residence.

Share of County Residents Enrolled as Part-time Undergraduates at a Maryland College or University Attending County Community College, Fall 1990-94					
County	1990	1991	1992	1993	1994
Prince George's	59.9	60.2	60.9	60.0	59.7
Anne Arundel	74.5	74.8	73.4	74.7	74.2
Baltimore	69.8	70.5	68.7	68.3	68.4
Montgomery	73.4	74.6	74.4	75.2	76.1

The Competition

More Prince George's County residents attend PGCC than any other institution of higher education. While the college's share of the total county undergraduate market is less than the comparable shares of community colleges in some other jurisdictions, PGCC is nevertheless the number one choice of county residents. In fall 1994, a total of 11,547 (or 44 percent) of the 26,174 county residents attending a Maryland college attended PGCC. The second most popular institution, the University of Maryland at College Park (UMCP), enrolled 4,182 residents of Prince George's County. Thus PGCC enrolled over two and a half times as many county residents as the second most popular institution. (If a resident was enrolled at several institutions simultaneously, MHEC randomly assigned the resident to one of the institutions. As a result, MHEC enrollment figures do not match official third-week reports.)

Four institutions enrolled 80 percent of the Prince George's County residents attending a Maryland college as undergraduates: PGCC, UMCP, University of Maryland University College (UMUC), and Bowie State University. Of the four, only Bowie State enrolled more Prince George's County residents in 1994 than in 1990. Enrollment of county residents at Bowie State has increased nearly 30 percent since 1990. Other institutions with larger enrollments of Prince George's County residents over the 1990-94 period included Morgan State University (up 64 percent) and the University of Maryland Eastern Shore (up 28 percent).

Ten Maryland Colleges and Universities Enrolling the Most Undergraduates from Prince George's County, Fall 1990-94					
	1990	1991	1992	1993	1994
PGCC	12,528	12,692	12,595	12,187	11,547
UMCP	5,009	4,918	4,451	4,252	4,182
UMUC	3,763	3,621	3,445	3,202	3,152
Bowie State	1,610	1,648	1,877	2,087	2,085
UMBC	621	682	678	668	635
Montgomery College	589	685	647	637	623
Morgan State	365	415	484	539	599
Towson State	606	618	602	571	558
UMES	385	451	411	414	492
Frostburg State	357	349	348	378	343
All others	1,790	1,864	1,896	1,847	1,958
TOTAL	27,623	27,943	27,434	26,782	26,174

Attendance of Prince George's County residents at Maryland institutions of higher education varied according to student course loads. The University of Maryland at College Park enrolled the most full-time students from the county in fall 1994. However, among first-time, full-time freshmen, PGCC was most popular--enrolling 944 residents compared to 527 for UMCP. For part-time students, University College was second only to PGCC. Together, PGCC and UMUC enrolled four of every five Prince George's County residents attending a Maryland college as part-time undergraduates.

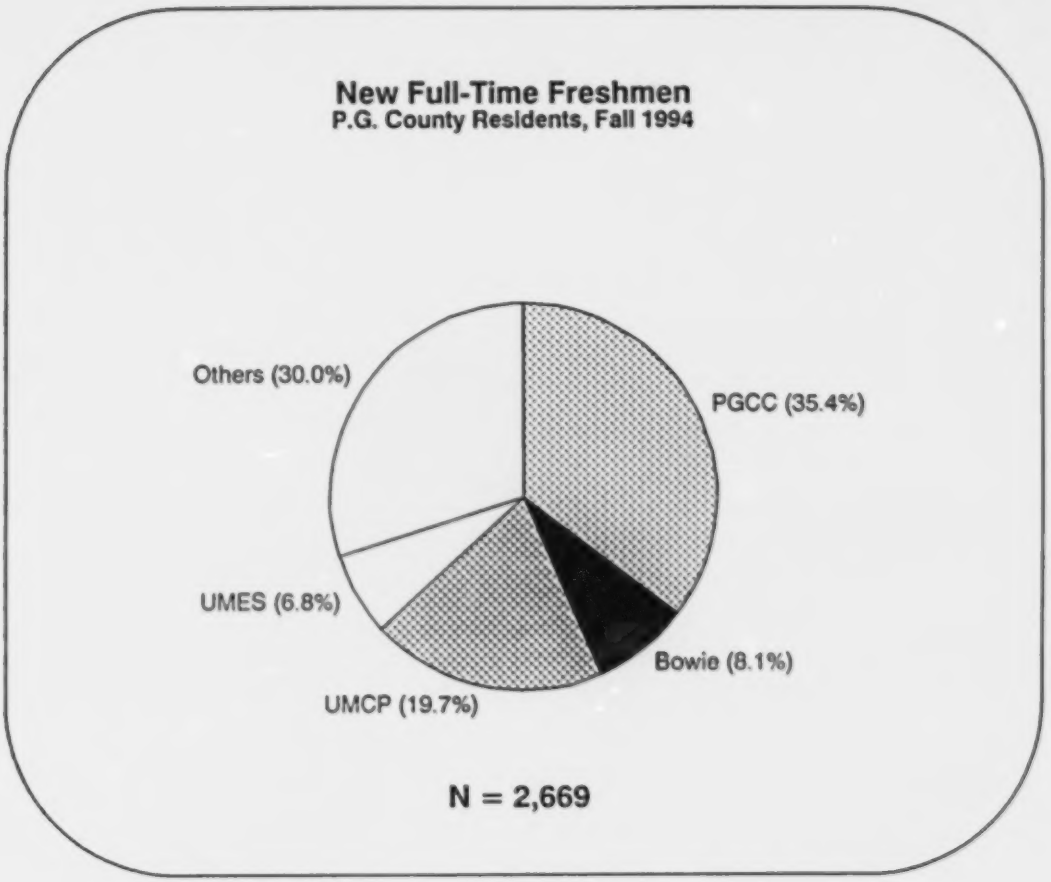
In-state competition for new full-time freshmen from Prince George's County currently involves primarily five institutions: PGCC, UMCP, Bowie State University, University of Maryland Eastern Shore, and Morgan State University. Competition for part-time undergraduates from the county centers on PGCC and UMUC.

Undergraduate Status of Prince George's County Residents Attending Maryland Colleges and Universities, Fall 1994				
	New FT Freshmen	Total Full-Time	Total Part-time	Total Students
PGCC	944	2,727	8,820	11,547
UMCP	527	3,345	837	4,182
UMUC	8	257	2,895	3,152
Bowie State	217	1,353	732	2,085
UMBC	70	516	119	635
Montgomery College	83	175	448	623
Morgan State	146	555	44	599
Towson State	93	509	49	558
UMES	181	477	15	492
Frostburg State	68	335	8	343
All others	332	1,162	796	1,958
TOTAL	2,669	11,411	14,763	26,174

In summary, analysis based on fall 1994 market shares, the most recent information available, revealed the following:

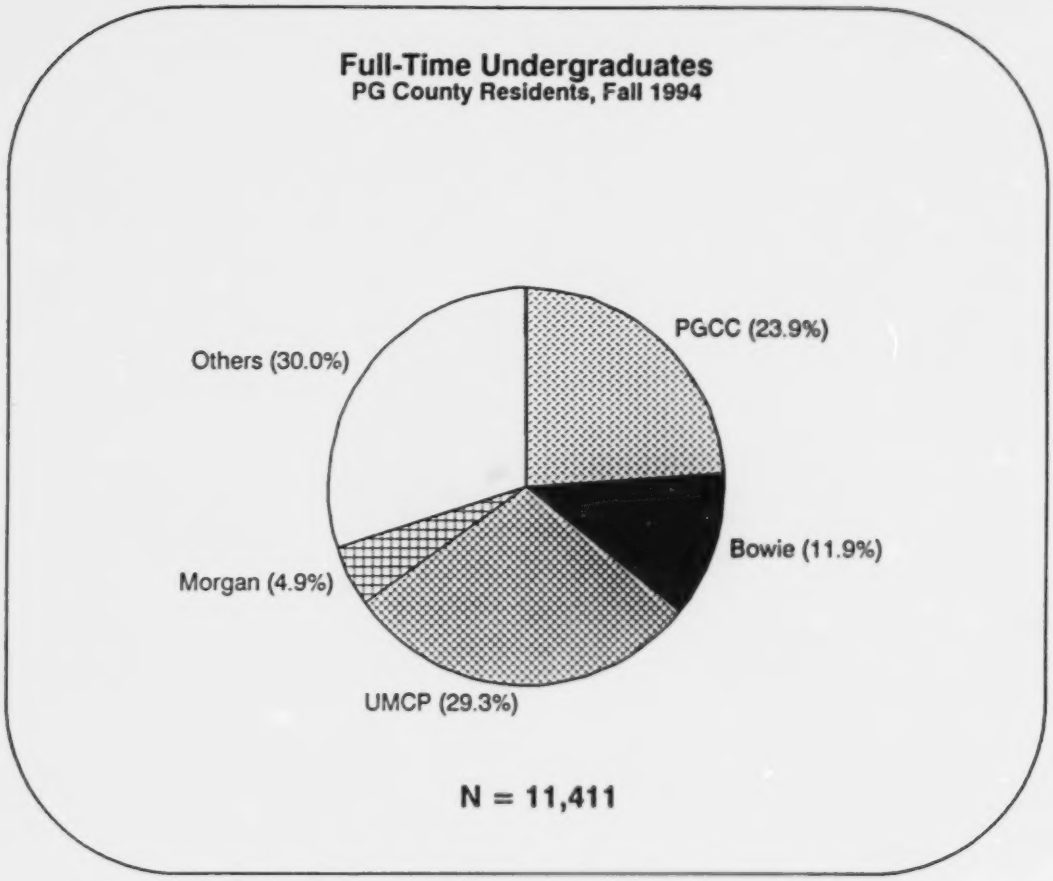
- The college's market shares of new full-time freshmen and of all full-time undergraduates in fall 1994 were the lowest in recent history.
- The drop in new full-time market share (nearly 5 percentage points) between 1993 and 1994 was the largest decline on record.
- The decline in market share of all full-time undergraduates (2 percentage points) was the largest in 9 years.

The displays on the next three pages show six-year trends in competitive market shares for first-time full-time, full-time, and part-time undergraduates residing in Prince George's County.



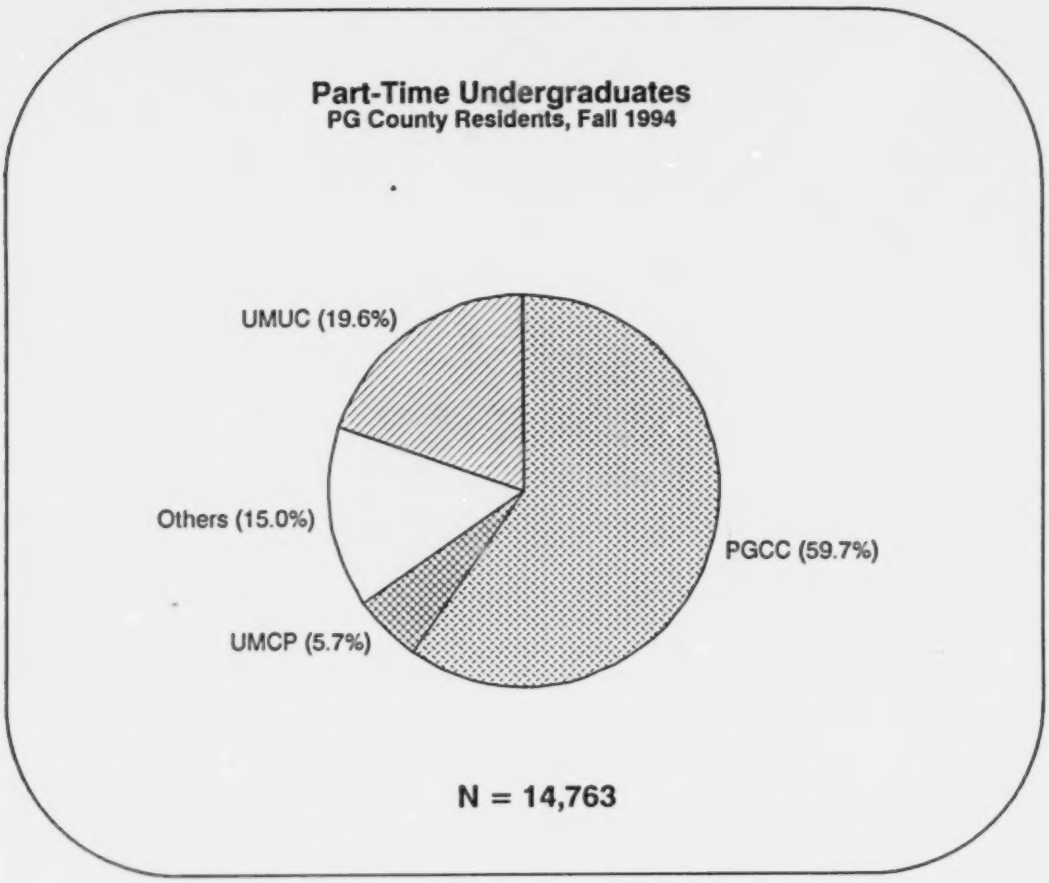
New Full-Time Freshmen

	1989	1990	1991	1992	1993	1994
Number of county residents enrolling as full-time freshmen at in-state colleges or universities	2,843	2,679	2,565	2,637	2,547	2,669
Percent enrolling at PGCC	40.5	43.2	41.0	39.9	40.3	35.4
Percent enrolling at major competitors:						
UMCP	20.2	18.0	17.9	19.7	17.9	19.7
Bowie State	8.3	8.7	6.2	9.4	8.5	8.1
UMES	4.1	4.6	5.1	2.9	4.4	6.8
Morgan State	3.1	2.3	4.7	6.1	5.1	5.5
Towson State	3.3	4.0	4.1	3.0	2.5	3.5
Montgomery	3.4	2.8	3.8	3.1	3.4	3.1
UMBC	3.8	3.6	4.6	2.5	3.4	2.6
Frostburg State	3.2	4.1	2.9	3.3	4.0	2.5



Full-Time Undergraduates

	1989	1990	1991	1992	1993	1994
Number of county residents enrolling as full-time students at in-state colleges or universities	11,995	12,060	11,943	11,665	11,396	11,411
Percent enrolling at PGCC	26.4	26.6	25.7	25.6	25.9	23.9
Percent enrolling at major competitors:						
UMCP	34.8	32.5	31.5	29.7	28.3	29.3
Bowie State	7.6	9.2	9.3	10.9	11.7	11.9
Morgan State	2.8	2.8	3.2	3.9	4.4	4.9
Towson State	4.5	4.7	4.8	4.7	4.6	4.5
UMBC	4.1	4.3	4.9	4.8	4.7	4.5
UMES	2.8	3.2	3.7	3.5	3.6	4.2



Part-Time Undergraduates

	1989	1990	1991	1992	1993	1994
Number of county residents enrolling as part-time students at in-state colleges or universities	16,095	15,563	16,000	15,769	15,386	14,763
Percent enrolling at PGCC	59.4	59.9	60.2	60.9	60.0	59.7
Percent enrolling at major competitors:						
UMUC	22.1	21.8	20.6	20.0	19.2	19.6
UMCP	7.2	7.0	7.2	6.2	6.7	5.7
Bowie State	2.8	3.2	3.4	3.8	4.9	5.0
Montgomery	3.0	2.7	3.0	3.0	3.0	3.0

Tuition and Fee Comparisons

How do fall 1995 tuition and required fees compare among PGCC, UMCP, and Bowie State University? To find out, PGCC costs were calculated for county residents under the $15 and $25 Instructional Services Fee rates. In addition, PGCC costs included a $1 per credit hour student activity fee and a $20 registration fee. For Bowie and UMCP, total cost was based on state residents in undergraduate programs. Room and board were excluded.

Tuition and Mandatory Fees, Fall 1995
PGCC, Bowie, and UMCP

Credit Hour Load	PGCC @ $15 ISF	PGCC @ $25 ISF	Bowie Total Cost	UMCP Total Cost	Bowie-PGCC Difference @ $15 ISF	UMCP-PGCC Difference @ $15 ISF
3	275	305	389	614	$114	$339
6	530	590	692	1,094	162	564
9	785	875	995	1,574	210	789
12	1,040	1,160	1,510	1,897	470	857
15	1,295	1,445	1,510	1,897	215	602

For all credit hour loads, PGCC is less expensive than Bowie, and Bowie is less expensive than UMCP. However, the differences for full-time study, particularly PGCC compared to Bowie, are not great. While a three-credit class would cost $84 to $114 more at Bowie than at PGCC, 15 credits would cost only $65 to $215 more. The full-time tuition rate at the university (making credits above 12 essentially "free") narrows the cost differential.

Why Do Some Applicants Not Enroll?

A key marketing question is why people who consider PGCC for postsecondary education fail to act on that inclination. The Office of Institutional Research and Analysis conducted a telephone survey during December 1994 to address this question. A total of 3,561 county residents applied for fall 1994 admission to Prince George's Community College. Under the college's open door admissions policy, all were accepted. A total of 1,879, or 53 percent, enrolled at the college in fall 1994.

The research office was asked by the Marketing Council to investigate why students who had expressed and acted on an interest in attending PGCC did not subsequently enroll for classes.

One hypothesis was that PGCC was a back-up choice for students who were applying and hoping to attend college elsewhere. Yet only one-fifth of the PGCC applicants had enrolled at other colleges in fall 1994. Bowie State University was the most popular:

College Attendance in Fall 1994 of PGCC Applicants Who Did Not Enroll at PGCC	
College or University	Total
Bowie State University	13
University of Maryland at College Park	8
Montgomery College	5
Strayer College	4
University of the District of Columbia	4
Lincoln Technical Institute	3
Coppin State College	2
Frostburg State University	2
Morgan State University	2
Mount Vernon College	2
Towson State University	2
Other colleges	32
Total enrolled in college	79
Not attending college	295
Total respondents (including informants)	374

Thus, four out of five people who had applied to attend PGCC in fall 1994 did not attend college anywhere that term.

Applicants who were reached by phone were asked "What was the main reason why you didn't enroll at Prince George's Community College this fall?" Lack of

adequate personal finances was most frequently mentioned, cited by a third of the respondents. Another 12 percent indicated failure to secure financial aid. Thus 45 percent, or nearly half, of the respondents identified financial obstacles to their enrollment at PGCC. Thirteen percent of the applicants contacted said that they preferred to attend another college or university. Employment demands, transportation problems, child care responsibilities, and personal health problems were among the other reasons cited:

Reasons for Not Enrolling at PGCC
Fall 1994 Applicants
Phone Survey Respondents (N = 184)

Reason for Not Enrolling at PGCC	Percent of Respondents
Didn't have the money/couldn't afford it	33%
Preferred to go to another college	13%
Applied too late/couldn't get financial aid	12%
Conflict with work schedule	6%
Transportation difficulties	6%
Child care responsibilities	5%
Personal emergency/health reasons	5%
Placement test	4%
Couldn't get desired courses	4%
Missed registration deadline	3%
Joined military service	2%

The telephone interviewers conducting the survey transcribed applicant comments as accurately as possible. Representative applicant comments are presented below, grouped within reason categories mentioned by at least five percent of the respondents.

Didn't Have the Money/Couldn't Afford It

The most prevalent reason given by applicants to PGCC who did not enroll at the college was that they didn't have the money or couldn't afford it. A third of the

respondents to the phone survey indicated some reason related to their personal financial situation or to the college's costs. Sample comments included the following:

Money. I can't afford to pay a $300 truck payment, a $700 rent payment, and go to school at the same time.

They gave me only two weeks to get my money together. I didn't have the money.

Money. My clutch went out. It was $500. That was my tuition money.

The cost of three courses was too high. So I went to another college where the cost of three courses was less.

I have a son who's a senior in high school. His senior expenses have blown us out of the water. I've put my plans on hold until he's done. It will be at least a year. He's going to Lincoln Technical Institute next year.

Because I had to have the money in too soon.

Because I didn't get my finances in order. I didn't want financial aid. I wanted to pay for it.

Preferred to Attend Another College

The second most frequent reason given for not attending PGCC in fall 1994 was that the applicant had chosen to attend another college or university. Thirteen percent of the applicants gave this answer. In most cases, it was clear that PGCC was a back-up option in case an applicant didn't get into his or her preferred college. In some cases, scholarship offers by other colleges were crucial to student decisions to attend college elsewhere. The following quotes were in response to the question, "Why did you decide to attend _____ rather than Prince George's Community College?"

Because I wanted to go to a place where I didn't know anybody, so that I could get a fresh start.

I was accepted at a four-year school, and they gave me money.

Peer pressure. I didn't want people talking behind my back.

Because my job was paying for classes at Catonsville.

Because Mount Vernon College offered me money.

I want a bachelor of science in nursing and PGCC doesn't offer it.

I wanted to go to a university.

Because I live with my aunt during the week and her house is closer to Howard Community College.

Because I got accepted into the limited acceptance program in journalism at College Park. To stay in the program, I have to maintain a 2.0. To transfer in from PGCC, I would have to maintain a 2.8. A PGCC counselor recommended I go to UMCP.

I don't have to take any developmental courses at Strayer, and the staff there were very polite.

Because my father wanted me to attend a college where I wouldn't have to transfer after two years.

Because College Park has a very good computer science program.

I went to Computer Learning Center because I want to get a job as soon as possible.

My mother thought I'd be more comfortable at St. Mary's, and I thought I could talk to my teachers more.

I was on the waiting list for nursing. I didn't have to wait at Liberty University.

Applied Too Late/Couldn't Get Financial Aid

One in eight applicants said they didn't enroll at PGCC in fall 1994 because they didn't obtain financial aid. In most cases, this reflected applying too late or problems in processing, rather than being rejected. Sample comments:

My financial aid packet had not come back.

I didn't have any money. I was going to pay for it, but then I applied for a loan. But I asked one of the ladies in the financial aid office for help, and I didn't get any. They wanted to ask about my parents and stuff on the forms. My parents aren't applying to college.

I was looking to get some financial aid, and I didn't get any.

When I turned in my financial aid information, there was a problem with my social security number. I need to get it fixed with the Social Security Administration.

Because I didn't turn in my financial aid form.

I had to get my financial aid papers together. I hope to come in 1995. It takes so long to qualify for financial aid.

I was applying for financial aid and I didn't get my tax papers. My tax lady has all my paperwork.

I kept going up there, and they kept telling me different stuff. I'm getting my financial papers in for spring. I have to mail in one more form. I didn't know I had to mail stuff in. My sister said I could just bring the papers in.

I didn't hear anything or receive anything from financial aid or the admissions office.

Conflict with Work Schedule

Six percent of the respondents indicated that employment demands, usually a conflict between work hours and class schedules, prohibited their attendance at PGCC in fall 1994:

I couldn't get out of my work schedule. I work day and night.

Because I started working. It required me to work mornings and some evenings.

Transportation Difficulties

Six percent of the applicants indicated that problems getting to campus dissuaded them from enrolling. Lengthy trips on public transportation were typical:

I was going to be coming by bus every morning. It was too much complication.

I'm live in Fort Washington and it's difficult to get over there every day.

Child Care Responsibilities

One of every 20 respondents said that the responsibility of caring for children precluded their college attendance in fall 1994:

I work full time and have a child to take care of.

Because of my son. I thought my daughter would be able to watch him at night. She wasn't.

I just had a baby! I have to take care of my baby.

My babysitter didn't come through.

Because I have two small children and it's difficult for me to go out of the house to attend class. So I am taking a correspondence course with Empire State College.

Personal Emergency/Health Reasons

Five percent of the applicants cited unanticipated personal reasons, such as ill health or pregnancy, as explanations for not enrolling at PGCC in fall 1994:

I am pregnant right now.

Because my son came late. He was born in August.

I found out I was pregnant, and I thought it would be too much.

I had some personal things come up that I had to deal with.

I just learned I was pregnant. I plan to attend next fall.

Attend PGCC in the Future?

The non-enrolling applicants were asked if they thought they might attend PGCC in the future. Over two-thirds (69 percent) indicated they thought they would. Ten percent said no, with the remaining 21 percent not sure.

The High School Student Market

PGCC's credit student market can be divided into three segments: current students, new students direct from high school, and community adults--including people entering college for the first time two or more years after high school, students entering PGCC for the first time but who have attended college elsewhere previously, and students being readmitted to PGCC after an interruption in studies. These three segments represent separate target markets for college promotional campaigns. This section provides baseline data for the high school market.

Fall Enrollment of Students Direct from High School

Half of the first-time college students entering PGCC each fall graduated from high school the prior spring or summer. Four-fifths of these entrants direct from high school are graduates of Prince George's County public high schools. In fall 1995, a total of 1,266 people who received high school diplomas in 1995 enrolled at PGCC. Eighty percent, or 1,018, had graduated from a public school in Prince George's County. The number of county public high school graduates entering PGCC was up six percent from fall 1994. The number of graduates from private schools in the county entering PGCC has declined steadily during the 1990s:

Fall Enrollment of Current-year High School Graduates
High School Graduates Entering PGCC each Fall

Fall	Total	P.G. Public	P.G. Private	Non-P.G. Schools	G.E.D.
1995	1,266	1,018	82	141	25
1994	1,210	958	98	119	35
1993	1,307	1,033	101	146	27
1992	1,342	1,052	124	130	36
1991	1,349	1,022	130	151	46
1990	1,462	1,145	147	134	36

Where do County High School Graduates Go to College?

Prince George's Community College enrolls more county high school graduates than any other higher education institution. More county high school graduates attend PGCC than attend all four-year colleges and universities in Maryland combined. The most recent data available, provided by the High School Graduate System (HGS) portion of the Maryland Higher Education Commission's Student Outcome and Achievement Report (SOAR), reports on the Maryland college attendance during 1993-94 of students graduating from high school in 1993.

A total of 2,592 graduates of Prince George's County schools attended a college or university in Maryland at some time during the 1993-94 academic year. This represents 42 percent of the total graduates for that year. The remaining 58 percent either attended a college outside of Maryland or did not attend college at all.

Half of all the students attending college in Maryland--or about 21 percent of all county high school graduates from 1993--enrolled at Prince George's Community College in fall 1993, spring 1994, or FY94 summer sessions. Sixteen percent of the graduates enrolled at Maryland four-year public institutions. Less than one percent attended an independent college or university in Maryland.

College Attendance of County High School Graduates of 1993
College Enrollment during 1993-94 Academic Year

Institution/Segment	Number	Percent
Prince George's Comm. College	1,307	21%
Maryland public four-year	990	16%
Other Maryland community college	247	4%
Maryland independent college	48	<1%
Total in college in Maryland	2,592	42%
Not in college/attending out of state	3,625	58%
Total County high school graduates	6,217	100%

The percentages in the above table reflect the proportion of the total 6,217 graduates attending each type of institution. An alternative calculation reports the percentage of graduates enrolled in a Maryland college or university that attends

institutions in each segment. Of the 2,592 graduates attending a Maryland college, three-fifths were enrolled in a Maryland community college, mostly at PGCC. Campuses of the University of Maryland system enrolled another third. Two percent of the Maryland college-going graduates enrolled at private institutions. Five percent chose Morgan State University. The five most popular institutions were (with percent *of those attending a Maryland college*):

Enrollment of County High School Graduates of 1993 Percent of Graduates Attending Maryland Colleges or Universities in 1993-94		
College or University	Number	Percent
Prince George's Community College	1,307	50%
Univ. of MD at College Park	350	14%
Bowie State University	160	6%
Montgomery College	155	6%
Morgan State University	134	5%
All others	486	19%
Total attending Maryland colleges	2,592	100%

College and university attendance differed somewhat by student race or ethnicity. While similar proportions of African-American and white students attended community colleges (60 and 62 percent, respectively), fully a fourth of the white county graduates enrolled at a Maryland community college other than PGCC--compared to less than ten percent of the African Americans. Sixty-two, or 87 percent, of the 71 Prince George's County high school graduates choosing Anne Arundel, Charles, or Howard community colleges instead of PGCC were white. Seven in ten Hispanic graduates were enrolled at a community college, a third at Montgomery College.

Nearly half of the Asian graduates of county high schools enrolled at campuses of the University of Maryland, with the College Park campus most popular. A third of the white students, and 30 percent of the African Americans, attended UMS schools. All but ten of the over 400 county high school graduates enrolled at Bowie State University, Coppin State College, Morgan State University, and the University of Maryland Eastern Shore, were African Americans.

Maryland College and University Attendance of 1993 Graduates of Prince George's County High Schools

Attending College during 1993-94 Academic Year, by Race

Institution	Asian	Black	Hispanic	White
Prince George's CC	73	879	28	296
Montgomery College	22	77	16	29
Howard CC	2	2	2	24
Charles County CC	0	2	1	19
Anne Arundel CC	0	0	0	19
All other MD CCs	2	11	0	5
Total community college enrollees	99	971	47	392
UM-College Park	78	123	16	121
Bowie State University	2	151	1	5
UM-Eastern Shore	1	90	0	0
UM-Baltimore County	12	36	0	27
Frostburg State Univ.	3	37	2	30
Salisbury State Univ.	1	11	0	15
Towson State Univ.	2	31	0	14
Coppin State College	0	17	0	0
Total University of Maryland system	99	496	19	212
Morgan State Univ.	1	132	0	0
St. Mary's College	1	6	0	8
Capitol College	0	10	0	2
All other independents	1	14	1	18
TOTALS	201	1,629	67	632

SOURCE: MHEC Student Outcome and Achievement Report (SOAR) high school graduate system, March 1995. Table excludes 63 Native American and "other race" graduates attending Maryland colleges and universities.

The tables below show the number and percent of graduates from each county high school enrolling at PGCC each fall. Schools providing the most entrants to PGCC in recent years have been Largo, Eleanor Roosevelt, Bowie, Suitland, and Oxon Hill.

Fall Enrollment of County Public High School Graduates Entering PGCC Fall Following High School Graduation						
	1990	1991	1992	1993	1994	1995
Largo	92	80	104	92	82	105
Roosevelt	81	57	67	64	69	99
Bowie	117	77	100	82	74	72
Suitland	51	80	80	70	75	72
Oxon Hill	70	44	59	62	70	70
DuVal	64	51	38	55	51	54
Douglass	51	44	45	67	50	52
Northwestern	51	54	31	57	38	50
Crossland	78	71	74	69	58	49
High Point	59	65	39	43	39	48
Surrattsville	59	46	63	43	43	45
Parkdale	61	66	45	35	44	42
Gwynn Park	32	39	45	35	43	41
Friendly	85	67	49	57	46	37
Fairmont Hts.	31	28	38	29	24	36
Bladensburg	35	42	38	56	42	35
Laurel	35	23	28	30	20	34
Central	31	14	37	36	35	28
Potomac	36	46	36	30	27	25
Forestville	25	24	22	19	18	14
Evening H.S.	0	0	2	0	2	7
Croom Voc.	1	0	3	0	1	2
Tall Oaks Voc.	0	4	9	2	6	1
Cheltenham	0	0	0	0	1	0
Total	1,145	1,022	1,052	1,033	958	1,018

Fall Enrollment Rates of County Public High School Graduates
Entering PGCC Fall Following High School Graduation

	1994 Graduates			1995 Graduates		
	Total Grads	Entered PGCC	Percent	Total Grads	Entered PGCC	Percent
Largo	428	82	19.2%	457	105	23.0%
DuVal	246	51	20.7%	247	54	21.9%
Fairmont Heights	156	24	15.4%	171	36	21.1%
Surrattsville	214	43	20.1%	220	45	20.5%
Bowie	390	74	19.0%	401	72	18.0%
Oxon Hill	397	70	17.6%	402	70	17.4%
Douglass	317	50	15.8%	306	52	17.0%
Central	192	35	18.2%	167	28	16.8%
Parkdale	262	44	16.8%	256	42	16.4%
Bladensburg	253	42	16.6%	229	35	15.3%
Gwynn Park	291	43	14.8%	274	41	15.0%
Crossland	328	58	17.7%	331	49	14.8%
Roosevelt	596	69	11.6%	684	99	14.5%
Evening H.S.	46	2	4.3%	50	7	14.0%
Suitland	502	75	14.9%	526	72	13.7%
Friendly	283	46	16.3%	306	37	12.1%
Northwestern	359	38	10.6%	441	50	11.3%
Potomac	220	27	12.3%	227	25	11.0%
High Point	446	39	8.7%	447	48	10.7%
Forestville	123	18	14.6%	152	14	9.2%
Laurel	356	20	5.6%	383	34	8.9%
Croom Voc.	38	1	2.6%	51	2	3.9%
Tall Oaks Voc.	60	6	10.0%	60	1	1.7%
Cheltenham	8	1	12.5%	12	0	0.0%
Total	6,511	958	14.7%	6,800	1,018	15.0%

Remedial Needs of County High School Graduates

Two-thirds of the entering high school graduates in fall 1995 who completed the placement test battery in all three skill areas (reading, English composition, and mathematics) had test scores indicating a need for remediation in at least one area. A fourth of the tested students needed remediation in all three areas:

Remedial Needs of 1995 County High School Graduates Entering PGCC Tested in All Three Skill Areas		
Tested in all three areas	950	100%
No remediation needed	315	33%
Remediation needed	**635**	**67%**
In one area	229	24%
In two areas	173	18%
In three areas	233	25%

The proportion of students needing remediation in at least one area was 67 percent, down four percentage points from fall 1994:

Percent of High School Graduates Tested in All Three Skill Areas Needing Remediation in at Least One Area		
	Tested in All Three Skill Areas	Percent Needing Remediation
Fall 1995	950	67%
Fall 1994	886	71%
Fall 1993	945	68%
Fall 1992	926	68%
Fall 1991	908	66%
Fall 1990	1,037	57%

The percentage of entering high school graduates needing remediation in mathematics declined from 61 to 53 percent in fall 1995. The proportion of students needing developmental reading has been relatively stable over the past four years. The percentage of new graduates needing developmental English was up slightly from last year:

Percent of High School Grads Tested in Each Skill Area Needing Remediation, Fall 1992-1995				
	1992	1993	1994	1995
Mathematics	54% (957)	58% (976)	61% (901)	53% (989)
Reading	39% (944)	42% (952)	39% (899)	39% (966)
English	38% (941)	39% (959)	39% (896)	41% (963)

Even though the percentage needing remediation has declined, mathematics remains the skill area that county high school graduates are most deficient in.

Survey of County High School Seniors, 1993-94

To learn more about the college plans of county high school students, the college has gained the cooperation of the county school system to administer a survey during scheduled school visits. During the 1993-1994 school year, the college's director of recruitment administered surveys in all 20 county public high schools and in 3 private schools. A total of 4,428 high school seniors completed the survey.

Eighty-nine percent of the seniors said they planned to attend college soon after high school graduation. Among seniors who mentioned a college, ten percent indicated Bowie State University, 13 percent the University of Maryland at College Park, 34 percent Prince George's Community College, and 43 percent specified other institutions.

The respondents were asked "Will you need financial aid to attend college?" Eighty-eight percent of the seniors who planned to attend Prince George's Community College responded yes. For seniors planning to attend Bowie State University, the University of Maryland at College Park, or some other institution, the figures were 93 percent, 89 percent, and 88 percent, respectively.

The survey asked seniors to check career areas that interested them from a list of programs at Prince George's Community College. The five career areas that seniors chose most often were business management, computer programming/information systems, engineering, nursing/health technology, and accounting. Thirty percent indicated interest in career areas not currently served by PGCC programming.

Career Interests of County High School Seniors Office of Recruitment Survey, 1993-94		
Career Areas	Number of Interested Seniors	Percent of All Seniors
Business Management	1,028	23
Computer/Information Systems	746	17
Engineering	709	16
Nursing/Health Technology	651	15
Accounting	595	13
Criminal Justice	543	12
Science/Mathematics	402	9
Electronics Technology	354	8
Computer Service Technology	357	8
Marketing	354	8
Early Childhood Education	302	7
Art	279	6
Paralegal/Legal Assistant	270	6
Music	274	6
Teaching	258	6
Word Processing/Secretarial	217	5
Drafting/Computer-Aided Drafting	144	3
Landscaping/Horticulture	96	2
Space Technology	97	2
Other	1,338	30

Only half of the seniors were aware that Prince George's Community College offered courses of study in the listed career areas. Seventy percent of the students stated they were aware that the first two years of a four-year degree could be completed at Prince George's Community College, and that all credit hours from these years could be transferred with proper course selection.

The survey asked county high school seniors to rate Prince George's Community College in six categories, using a five-point scale: very good (5), good (4), fair (3), poor (2), and very poor (1). The average ratings in each category were 4.1 for cost, 4.0 for variety of courses, 3.9 for quality of teaching, 3.7 for co-curricular activities, 3.7 for PGCC as a place for "people like me", and 3.7 for overall reputation.

High School Student Ratings of PGCC
Office of Recruitment Survey, 1993-94

Category	Students Responding	Very Good (5)	Good (4)	Fair (3)	Poor (2)	Very Poor (1)	Scale Mean
Cost	3,833	39%	38%	22%	1%	<1%	4.1
Variety of Courses	3,793	25%	50%	23%	2%	1%	4.0
Quality of Teaching	3,746	14%	61%	24%	1%	1%	3.9
As a Place for People Like Me	3,817	21%	41%	28%	6%	4%	3.7
Co-Curricular Activities	3,668	12%	49%	33%	4%	1%	3.7
Overall Reputation	3,837	15%	47%	30%	5%	2%	3.7

Responses to these rating scales varied somewhat by race/ethnicity. Sixty-eight percent (or 2,955) of the seniors described themselves as African-American, 21 percent (or 911) as white, 6 percent (or 251) as Asian, 5 percent (or 202) as Hispanic/Latino, and 1 (or 34) percent as Native American/Indian. Two percent (or 75) of the seniors did not provide their racial/ethnic background. Across all racial/ethnic backgrounds, the highest average ratings were given to the cost of attending Prince George's Community College. African-American and Hispanic students gave PGCC higher average ratings than Asian or white students on all five remaining scales. The largest difference was in response to the assessment of PGCC "as a place for people like me." African-American students had an average rating of 3.8 on this scale, compared to 3.4 for white students.

Average Ratings of PGCC, by Race/Ethnicity Office of Recruitment Survey, 1993-94					
Category	Black	White	Asian	Hispanic	Native
Cost	4.1	4.3	4.1	4.1	4.0
Variety of Courses	4.0	3.8	3.7	4.1	4.0
Quality of Teaching	3.9	3.8	3.8	4.1	3.9
As a Place for People Like Me	3.8	3.4	3.4	4.0	3.4
Co-Curricular Activities	3.7	3.5	3.4	4.0	3.8
Overall Reputation	3.7	3.5	3.5	4.0	3.7

Nine in ten high school seniors planned to attend college soon after graduation. Over a third (34 percent) planned to attend PGCC. The University of Maryland at College Park was cited by another 13 percent. Bowie State University received the third most mentions, chosen by 10 percent of the respondents. Fully 43 percent (or 1,658 respondents) of the seniors who planned to attend college did not plan to attend Bowie State, PGCC, or UMCP. They identified 320 other institutions in their plans, a clear indication that colleges and universities nationally have a recruiting presence in Prince George's County. The ten most commonly cited institutions (other than PGCC, UMCP, or Bowie State) were Morgan State University, Hampton University, Towson State University, the University of Maryland Baltimore County, the University of Maryland Eastern Shore, Howard University, Montgomery College, North Carolina A and T, the University of the District of Columbia, and Salisbury State University. At the opposite end in popularity, 169 institutions were cited just once.

Colleges and Universities Cited by County High School Seniors In Addition to PGCC, University of Maryland College Park, and Bowie State Office of Recruitment Survey, 1993-94		
Institution	Number of Listings	Percent of College-bound Seniors
Morgan State University	174	4.5
Hampton University	128	3.3
Towson State University	111	2.9
University of Maryland Baltimore County	107	2.8
University of Maryland Eastern Shore	103	2.7
Howard University	97	2.5
Montgomery College	69	1.8
North Carolina A & T State University	59	1.5
University of the District of Columbia	50	1.3
Salisbury State University	46	1.2

Assessing the Adult Market for Higher Education in the County

During the spring of 1995, a committee of the college's Marketing Council, in conjunction with OIRA, designed a telephone survey of county adults to expand the college's knowledge of the community's perceptions of PGCC and the overall postsecondary education market. The college contracted with the Survey Research Center at the University of Maryland at College Park to conduct the phone interviews. Four hundred interviews were completed.

The Past Course-Taking Market

- About a quarter of the respondents reported having engaged in some form of postsecondary course-taking during 1993-1995.

- Corroborating MHEC published enrollment data, PGCC proved to be the favorite choice of survey respondents claiming postsecondary course-taking within the last two years; other survey findings, however, suggested that the college's market preeminence needed to be qualified in several important ways.

- PGCC was much more likely to be top choice of past *non-credit* course-taking respondents than among *credit* course-taking respondents.

- Looking at *number of past courses* taken by past students ("moving product") rather than *number of past enrollees* ("acquiring customers") as the basis for determining course provider market share, PGCC market position was drastically reduced, especially as compared with those of UMCP, Bowie State University and other Maryland public four-year institutions.

- Three in ten respondents in the past student subsample said that they already held bachelor's degrees. Students desiring further *degree-credit* study and graduate degrees would be unlikely candidates for community college enrollment.

- Almost two-fifths of the past course-taking respondents said that their studies took place at course providers *not tracked by MHEC* -- 20 percent at out-of-state four-year colleges and universities, and 18 percent at non-traditional higher educational agencies (proprietary schools, employer-based training classes and local government-sponsored continuing education programs). Collectively, the latter grouping proved to be PGCC's main competition for the continuing education dollar.

- There were as many past course-taking respondents who *considered PGCC* before choosing some other provider as there were claimed PGCC students. Although a numerical majority of "the ones that got away" ultimately selected four-year colleges and universities, a disproportionately large minority of them ended up with non-traditional course providers.

- A bit over half of the past student respondents said that they never even considered PGCC as a place to take classes; these firm rejecters concentrated in the four-year provider subsamples.

Provider Student Body Profiles

- The typical PGCC student recently has been non-white, age 30 or older, and married with children. He or she has been employed full-time and lives in a household with a low-middle annual income compared to the county average. Educationally, he or she did not go beyond a high school diploma. The PGCC student of the past showed equal likelihood to concentrate on credit or non-credit study, had mainly job-oriented educational objectives, and tended to take only a semester's worth of courses over a two-year period.

- The typical student who enrolled at a Maryland public four-year college or university was a single, minority person in his or her 20s from a home more affluent than the county average. He or she was about as likely to be a full-time student as to be employed full-time. Enrollment was almost always in a credit program and involved signing up for at least a year's worth of courses. Study was almost always aimed at obtaining a bachelor's or graduate degree, although job-related motives also were present.

- The typical past student at an independent Maryland or out-of-state college or university resembled the Maryland public four-year college student, except that he or she was much more likely to be white and to belong to a household even more affluent.

- The typical past student interviewed who chose a non-traditional course provider was, like the typical PGCC student, older, married, less affluent, employed full-time, job-oriented in his or her study objectives and likely to take only a few classes. Unlike the PGCC student, however, he or she did not typically come from a minority racial background.

Past Provider Choice Motivations

- When asked to explain their provider choice in their own words, past student respondents most often mentioned convenience of provider location and class scheduling (36 percent); the second most common reason was academic reputation or the quality of instruction and programs offered (21 percent). Only 12 percent gave tuition or cost explanations for provider selection, although another 8 percent mentioned a second financial reason behind their selection--the offer of a scholarship.

- the vast majority of past PGCC students in the sample tended to explain their provider selection in convenience of location and schedule terms;

both convenience and quality considerations, in about equal measure, seemed to underlie Maryland public college and non-traditional agency choice, while past students of private and out-of-state institutions tended to emphasize quality disproportionately.

- The reason most frequently given for not attending PGCC was the absence of post-associate courses and programs (28 percent); second most often heard were complaints that PGCC failed to offer the specific courses wanted or scheduled them inconveniently (21 percent). One in ten mentioned transportation problems.

- Past four-year college students, when asked "Why not PGCC?," most often cited the college's two-year status; those who had signed up with non-traditional providers most often said that the specific programs and class schedule PGCC offered failed to suit their needs.

The Nature of the Future or Potential Market

- Over two-fifths of the respondents said that they planned to take post-secondary classes in the next two years, compared to the quarter of the sample who claimed past course work.

- Since it is highly unlikely that future county college-level enrollments will actually grow that much by 1997, the course-planning subsample is best interpreted as representing the maximum *potential* postsecondary market (those with enrollment-inclined *attitudes*); future enrollment *behavior* is probably best represented by the past course-taking subsample since the size and shape of markets rarely change radically in the short run.

- PGCC led all competitors in potential market share (24 percent), followed by UMCP (22 percent). Maryland public four-year institutions as a group captured the largest share of the potential market--nearly two-fifths. Independent and out-of-state schools together accounted for 14 percent, and non-traditional providers for 5 percent.

- A comparison of past-provider and potential-provider subsamples suggested that PGCC has achieved a relatively low rate of market penetration. The implication is that there is opportunity for college enrollment growth.

- Demographically, survey respondents in the *potential* market subsample tended to be somewhat less educated, less well-off, older and more often from a minority racial background, compared with those in the *past* course-taker subsample.

Potential Student Motivations, Attitudes and Preferences

- When the potential student subsample was asked to gauge the importance of academic reputation, campus location, tuition costs and class size for their importance in provider selection using a 4-point scale, it rated all four factors at the "somewhat important" level or better. The most salient in their collective mind turned out to be tuition costs (scale mean = 3.45), the least salient was class size (2.99).

- Respondents inclined toward PGCC and non-traditional providers emphasized tuition and course costs in provider selection. Along with potential students choosing a Maryland public four-year school, PGCC potential students also were disproportionately inclined to highlight the salience of campus location. Maryland public four-year, private, and out-of-state university groups demonstrated above-average concerns about academic reputation.

- Responding to an open-ended question on how PGCC might improve its enrollment chances with them, potential students most often stated that that the college institute post-associate academic programs or even become a senior institution (cited by 26 percent).

- Other recommendations were: offer classes at more convenient locations or help with transportation (9 percent), cut tuition or provide scholarships (8 percent), and provide a more convenient course schedule and improve the registration process (6 percent). Only four percent of the respondents mentioned academic rank and instructional quality concerns.

- Definite majorities favored weekday classes over weekend classes (although half stated that they would be willing to enroll in a course meeting on Sunday) and preferred morning to evening meetings. Least popular were afternoon meetings.

- When asked about term attendance plans, a large majority hoped to enroll during both major semesters; among those who did pick a single term, the fall semester was the favorite. Very few expected to attend only in the summer.

PGCC County-Wide Image and Exposure

- Compared with other area community colleges, PGCC enjoyed a high reputation (very good, 40 percent; somewhat good, 55 percent). In terms of cost, however, the college did not enjoy the same happy consensus: 29 percent said that a PGCC education was either somewhat or very expensive.

- Among all the community outreach efforts and student recruitment programs employed by the college, only its mass mailing of course schedules was asked about in the survey. Three-quarters of the respondents remembered having received the bulletin, and three-quarters of them claimed to have read it--for an effective contact rate of around 50 percent.

- Past and potential PGCC students recalled receiving and reading the bulletin in overwhelming numbers; past students of non-traditional course providers, as a group, also registered a high rate of effective bulletin exposure. Bulletin receipt and reading was reported far less among past and potential four-year school respondents.

Marketing Plan Enrollment Objectives

During the fall 1995 semester, administrators in Advancement and Planning and Student Services jointly developed fall enrollment objectives for presentation to the Marketing Council. Specific headcount enrollment targets were developed for three market segments: current students, students entering college the fall following their high school graduation, and community adults. OIRA enrollment projections provided a baseline for development of the enrollment management objectives.

Current Students

Approximately half of the students enrolled each fall attended PGCC the prior spring--a reminder that currently enrolled students constitute a primary enrollment management market. Retention warrants as much attention as recruitment in maintaining enrollment and revenue levels. Prior studies have shown that students attending five or more terms, though accounting for only about one in every four students, together generate more total credit hours than the much larger number of students enrolling for four or fewer terms. In other words, students retained over the long term are responsible for a majority of the college's FTEs.

Students Direct from High School

Students direct from high school, comprising half of PGCC's new, first-time college entrants each fall, are an especially important market segment because of their credit hour generation. Two-thirds of the students entering PGCC the fall immediately following their high school graduation enroll as full-time students.

The Maryland Office of Planning forecasts increasing numbers of 12th grade students in Prince George's County between now and the end of the decade. Thus, with an assumed constant enrollment rate, the college can expect increasing numbers of new students from the county schools.

The Adult Market

The third market segment comprises new college students who delayed college entry past the year of their high school class graduation, students transferring to PGCC after having attended college elsewhere, and students being readmitted to PGCC after an interruption in studies. For marketing purposes, this is the adult market exclusive of those currently attending PGCC.

County residents age 20 to 34 are projected to decline by nearly 10 percent between now and the year 2000. People in this age group account for a majority of the credit students at PGCC. Due to decreases in this age group, OIRA projects a continuing, steady decline in credit students at PGCC through fall 1999, despite increasing numbers of students entering the college directly following high school.

Fall Credit Headcount Forecasts, 1996-1999

	Market:	Current Students	High Schools	Community Adults
Fall	Total Headcount	Continuing from Spring	Direct from High School	Delayed Entry, New Transfers, and Readmits
1990	13,087	6,412	1,426	5,249
1991	13,307	6,544	1,303	5,460
1992	13,318	6,690	1,306	5,322
1993	12,955	6,565	1,280	5,110
1994	12,201	6,243	1,175	4,783
1995	12,050	6,115	1,241	4,694
Projections:				
1996	*12,079*	*6,019*	*1,301*	*4,759*
1997	*12,057*	*6,033*	*1,341*	*4,683*
1998	*12,031*	*6,022*	*1,409*	*4,600*
1999	*12,007*	*6,009*	*1,414*	*4,584*

Fall Enrollment Objectives

The headcount objectives prepared for the Marketing Council picture steadily increasing enrollment through fall 1999, in contrast to OIRA projections of modest but steady decline:

Fall 1996-1999 Credit Headcount Objectives Compared to OIRA Forecasts

Market:			Current Students		High Schools		Community Adults	
	Total Headcount		Continuing from Spring		Direct from High School		Delayed Entry, New Transfers, and Readmits	
Fall	Forecast	Goal	Forecast	Goal	Forecast	Goal	Forecast	Goal
1996	*12,079*	12,180	*6,019*	6,080	*1,301*	1,300	*4,759*	4,800
1997	*12,057*	12,340	*6,033*	6,200	*1,341*	1,340	*4,683*	4,800
1998	*12,031*	12,530	*6,022*	6,320	*1,409*	1,410	*4,600*	4,800
1999	*12,007*	12,680	*6,009*	6,460	*1,414*	1,420	*4,584*	4,800

These students are projected to generate the following fall credit hours:

Fall 1996-1999 Credit Hour Objectives Compared to OIRA Forecasts

Market:			Current Students		High Schools		Community Adults	
	Total Credit Hours		Continuing from Spring		Direct from High School		Delayed Entry, New Transfers, and Readmits	
Fall	Forecast	Goal	Forecast	Goal	Forecast	Goal	Forecast	Goal
1996	*86,348*	88,481	*44,827*	45,296	*14,633*	14,625	*26,888*	28,560
1997	*86,226*	89,825	*44,931*	46,190	*15,083*	15,075	*26,212*	28,560
1998	*86,104*	91,507	*44,849*	47,084	*15,847*	15,863	*25,408*	28,560
1999	*85,980*	92,662	*44,753*	48,127	*15,904*	15,975	*25,323*	28,560

Summary

The Office of Institutional Research and Analysis prepared this *Annual Market Analysis* to support the work of the college's enrollment management team, Marketing Council, and others concerned with student recruitment. It presents the major findings of a number of OIRA studies, including insights gained from the most recent surveys of high school students, county adults, and PGCC entrants.

This *Annual Market Analysis* was largely limited to analyses of the market for degree-credit students. Half of the students who take classes at PGCC enroll in noncredit, continuing education courses, and these students generate 30 percent of collegewide FTEs.

The research office encourages suggestions as to how we could improve this document. Please contact OIRA in Kent Hall room 231, call x0723, or e-mail the director (at cc5@pgstumail.pg.cc.md.us.) with your ideas.

Student Learning Outcomes Assessment Report

Submitted to the
Maryland Higher Education Commission

PRINCE GEORGE'S
COMMUNITY COLLEGE

Report BT96-5

December 1995

PRINCE GEORGE'S COMMUNITY COLLEGE
Office of Institutional Research and Analysis

STUDENT LEARNING OUTCOMES ASSESSMENT REPORT

Board of Trustees Report BT96-5

December 1995

Introduction

Since its founding in 1958, Prince George's Community College has monitored the achievements of its students and it continues to do so today. Faculty evaluate student accomplishments in the classroom, laboratory, clinical site, and athletic field. Instructional divisions and departments monitor their courses and programs for effectiveness. The college's Office of Institutional Research and Analysis completes several studies each year examining student achievement, with the results shared with top administration, faculty, and the college's governing board.

This report summarizes the findings of several ongoing assessment processes. The report format follows guidelines issued by the Maryland Higher Education Commission. It is intended to inform the Board of Trustees, the college community, and the public about the achievements of students enrolled in credit classes at PGCC. The report is testimony to the college's commitment to an assessment program that reflects the campus mission, provides public accountability, leads to institutional improvement, and enhances student learning.

Part I

Executive Summary and Institutional Impact

This report highlights the findings from numerous campus outcomes assessment activities, including analyses of general education, student persistence, graduation rates, transfer to senior institutions, licensure examination results, graduate employment, and developmental education. The college's assessment efforts have led to revisions to policy and implementation of several programs designed to enhance student achievement, many of which are described in Part II of this report.

The most recent development spurred by the college's analysis of student outcomes is appointment by the president of a collegewide retention committee. The committee has several charges, including: (1) review findings from the 1988-89 retention committee, (2) conduct a comprehensive review of the community college retention literature, (3) review existing institutional research on student progress and achievement, (4) identify campus strengths and weaknesses relating to factors associated with student persistence, including analysis of current PGCC retention programs, (5) determine retention goals, (6) devise strategies to accomplish goals, (6) establish priorities for resource allocation to implement strategies, and (7) identify performance indicators to assess effectiveness of retention activities.

Part II

Common Indicators

This section presents student outcome indicators mandated for inclusion in this report by the Maryland Higher Education Commission. Following a tabular presentation of the data, the recent trend is analyzed and the college's response, if any, is described.

General Education

Prince George's Community College believes all degree-seeking students should be able to communicate effectively, think critically, understand and interpret numerical data, understand the scientific method, appreciate cultural diversity, and value the fine and performing arts. The college attempts to ensure that all degree-seeking students meet these general education goals by requiring students to earn a minimum number of credit hours in specified subject areas.

In lieu of expensive evaluation procedures such as standardized testing, portfolio assessment, or personal interviews, the college relies on the individual assessments of its graduates as to the level of achievement of its general education mission. Graduates are asked in the annual follow-up survey to rate the extent to which PGCC attendance helped them achieve ten goals of general education.

Analysis. The response pattern has been consistent over the eight years the questions have been asked. Graduates report that their experiences at PGCC increased their enjoyment of learning, clarified their educational and career goals, and enhanced their self confidence. Graduates as a group have indicated that their PGCC attendance helped them more than a fair amount in developing their writing and in improving their understanding of science. The college has been less successful in imparting knowledge of other cultures and appreciation of the fine arts.

Planning for Innovation and Change. Partly in response to the relatively low ratings of student learning about other cultures, the college revised its graduation requirements for the Associate degree to include a three-credit requirement in cultural diversity. All degree candidates must complete a course from an approved list including courses offered in anthropology, literature, foreign languages, geography, history, philosophy, political science, and speech communication. Although not currently assessed by the survey instrument, the college has also added a computer literacy requirement for all degree candidates. All future degree recipients will have to demonstrate basic understanding of computers and information systems through appropriate coursework.

Achievement of General Education Objectives Graduate Self-reported Ratings, Five-point Scale			
	FY92 (N=386)	FY93 (N=344)	FY94 (N=328)
Enjoyment of learning	3.91	3.92	4.04
Goal clarification	3.88	3.87	3.92
Self confidence	3.89	3.85	3.89
Science understanding	3.42	3.28	3.50
Writing improvement	3.47	3.47	3.48
Mathematics improvement	3.20	3.17	3.28
Reading comprehension	3.30	3.37	3.26
Attentiveness to news	3.19	3.05	3.02
Knowledge of other cultures	2.94	2.91	2.88
Appreciation of fine arts	2.73	2.52	2.70

Student Persistence

To increase the college's understanding of student attendance patterns, progress toward degree completion, and eventual goal achievement, the Office of Institutional Research and Analysis has instituted a series of longitudinal cohort analyses following the experiences of students entering the college in fall 1990, 1991, and 1992. The status of the fall 1990 entering cohort will be summarized in this section.

A total of 2,643 students entered PGCC as first-time college students in fall 1990. Only 61 percent returned in spring 1991, although an additional 12 percent would enroll at PGCC in a later semester during the five-year period under study. Over time, the proportion of the initial entering cohort still attending PGCC declined steadily. By spring 1995, only 269 or 10 percent of the 2,643 students entering in fall 1990 were still enrolled at PGCC. The table at the top of the next page displays term-by-term attendance of the 1990 cohort for all 20 terms through summer session II of 1995.

Fall 1990 Entrants, Attendance by Term				
	Students Attending Specified Term		Students Attending Specified or Subsequent Term	
	Number	Percent	Number	Percent
Fall 1990	2,643	100%	2,643	100%
Spring 1991	1,614	61%	1,919	73%
Summer I 1991	267	10%	1,559	59%
Summer II 1991	160	6%	1,538	58%
Fall 1991	1,175	44%	1,524	58%
Spring 1992	968	37%	1,335	51%
Summer I 1992	187	7%	1,092	41%
Summer II 1992	115	4%	1,070	41%
Fall 1992	727	28%	1,056	40%
Spring 1993	595	23%	911	35%
Summer I 1993	125	5%	736	28%
Summer II 1993	92	3%	720	27%
Fall 1993	462	17%	694	26%
Spring 1994	344	13%	569	22%
Summer I 1994	84	3%	454	17%
Summer II 1994	58	2%	440	17%
Fall 1994	326	12%	427	16%
Spring 1995	269	10%	302	11%
Summer I 1995	61	2%	91	3%
Summer II 1995	46	2%	46	2%

How much progress had these students made during the five years since their initial enrollment at PGCC? One measure is cumulative credits earned. Nearly 27 percent of the students had earned at least 30 credits. But 976, or 37 percent, had

earned fewer than six credits. Nearly a fifth of the students entering in fall 1990 had yet to earn a single credit by the end of spring 1995. These students may have passed developmental courses, which do not award credit, but failed or withdrew from any credit classes they may have taken. The table below shows the cumulative credits earned at the end of each major term during the study period.

Cumulative Credits Earned by Fall 1990 Entrants End of Fall and Spring Terms, 1990-1995										
Total Credits	Fall 90	Spr 91	Fall 91	Spr 92	Fall 92	Spr 93	Fall 93	Spr 94	Fall 94	Spr 95
0	846	669	592	572	548	540	524	519	508	506
1 - 5	814	613	546	521	502	495	489	482	476	470
6 - 11	667	573	514	458	427	405	392	395	393	387
12 - 17	315	357	318	298	276	265	265	245	244	245
18 - 23	1	242	216	211	208	194	184	194	182	186
24 - 29	0	150	170	152	149	154	146	150	146	138
30 - 44	0	39	248	264	279	276	277	261	259	258
45 - 59	0	0	39	144	172	183	192	199	212	201
60+	0	0	0	23	82	131	174	198	223	252

Implementation of the Transfer Student System (TSS) component of the Student Outcome and Achievement Report (SOAR) produced by the Maryland Higher Education Commission permits meaningful analysis of student outcomes for the fall 1990 cohort as of spring 1994. (More recent transfer data were not yet available.) Earlier research office studies have documented the primacy of transfer over graduation as a conventional outcome measure at PGCC. Indeed, the incidence of transfer is twice that of graduation. Thus, attempting to assess student outcomes without adequate information concerning transfer is unwise. While the Commission's TSS data is restricted to public colleges and universities in Maryland, and thus misses transfers out of state or to independent institutions, prior survey research suggests that typically 90 percent of PGCC transfers continue at in-state public colleges. Thus, acknowledging that transfer will be somewhat underestimated (and the "drop out" rate thus overstated), the college can make an assessment of the outcomes of the entering class of 1990. The table at the top of the next page summarizes the outcomes of these students four years after they began college.

Student Outcomes After Four Years Outcomes as of the End of Spring 1994 of Students Entering in Fall 1990		
Outcome	Number	Percent
Award and transfer	54	2%
Transfer, no award	214	9%
Award, no transfer	83	4%
Sophomore w/2.0+ GPA	314	13%
Achievers	665	28%
Enrolled Spr 94 <30 credits/2.0	175	7%
Non-achievers	1,547	65%
Total degree-seeking students	2,387	100%
Special motive (excluded from above)	256	

Analysis. A total of 256 of the 2,643 first-time college students entering PGCC in fall 1990 had short-term, non-degree goals and are excluded from the outcomes statistics reported here. Of the 2,387 degree-seeking students, 665 or 28 percent had graduated, transferred, or attained sophomore status in good standing after four years. Seven percent were still enrolled in spring 1994. Sixty-five percent, or 1,547 students, had discontinued their PGCC studies without graduating or attaining sophomore status, and did not appear on the TSS data files used as evidence of transfer.

The initial finding that only 28 percent of the degree-seeking students had achieved success (defined as graduating, transferring, or attaining sophomore status in good academic standing) prompted further research by the college. Several factors possibly related to student success were examined. The student persistence data

showing attendance by term suggested strongly that getting off to a good start was important for eventual achievement of student goals. This hypothesis was supported by the four-year outcome data. A majority (54 percent) of the students attending each of the first three major terms (fall 1990, spring 1991, and fall 1991) qualified as achievers by the definition used here. In contrast, students attending three or more terms but not all of the first three had an achievement rate of 22 percent.

Outcomes After Four Years, by Attendance Pattern Degree-seeking Students Entering in Fall 1990			
Outcome	"Good Start" (First 3 Terms)	3 or More Other Terms	1 or 2 Terms
Award and transfer	5%	1%	0%
Transfer, no award	16%	5%	4%
Award, no transfer	7%	4%	0%
Sophomore w/2.0+ GPA	26%	13%	<1%
Achievers	54%	22%	4%
Enrolled Spr 94 <30 credits/2.0	8%	23%	2%
Non-achievers	38%	55%	94%
Total degree-seeking students (100%)	1,030	309	1,048

Previous research office studies had found that mathematics ability was a key predictor of success, a finding consistent with much national literature. Exploratory studies at PGCC had suggested that students needing remediation in mathematics and at least one other area--reading or English composition or both--were at greatest risk of not succeeding. This proved true for the fall 1990 cohort. Only 11 percent of the students identified as needing developmental courses in mathematics and at least one other area were classified as achievers after four years. In contrast, students with no developmental needs achieved at a rate of 44 percent. Adding in persisters--students

enrolled at PGCC the last term of the study period--found half of the students not needing remediation successful, compared to only 20 percent of the "developmental math plus" group. Among full-time students, 56 percent of the non-developmental students--compared to 17 percent of the developmental math plus students--had graduated, transferred, or attained sophomore status in good standing within four years.

Student Outcomes After Four Years, by Developmental Need Outcomes as of the End of Spring 1994 of Students Entering in Fall 1990				
	No Developmental Needed		Developmental Math Plus Dev. Reading &/or English	
Outcome	Total	Full-time	Total	Full-time
Award and transfer	4%	7%	<1%	1%
Transfer, no award	17%	24%	2%	4%
Award, no transfer	5%	6%	1%	2%
Sophomore w/2.0+ GPA	18%	19%	7%	9%
Achievers	44%	56%	11%	17%
Enrolled Spr 94 <30 credits/2.0	6%	4%	9%	7%
Non-achievers	50%	40%	80%	76%
Total degree-seekers (100%)	949	536	628	281

Achievement rates were calculated for several academic variables, each of which appeared to be associated with student success. The more terms a student attended, and the more credits carried each term, the higher the achievement. Students who attended without interruption had higher achievement rates than students who had "stopped out." And students who were always in good academic standing had higher achievement rates than those who attended one or more terms on academic probation or restriction.

Percent Achievers, by Academic Characteristics			
	Number of Students	Percent of Cohort	Percent Achievers
Mean credit load 15+	104	4%	59%
12 - 14 credit hours	669	28%	43%
9 - 11 credit hours	558	23%	37%
6 - 8 credit hours	544	23%	19%
< 6 credit hours	512	21%	4%
No remediation needed	949	40%	44%
Remediation required	1,249	52%	19%
Not assessed	189	8%	10%
Attended 7 - 8 major terms	276	12%	72%
5 - 6 terms	440	18%	55%
3 - 4 terms	623	26%	31%
1 - 2 terms	1,048	44%	4%
Continuous enrollment	809	34%	58%
Interrupted enrollment	1,578	66%	13%
Always in good standing	849	36%	58%
At least one term not g.s.	1,538	64%	12%

The table above shows the achievement rates of various cohort subsamples defined by each variable individually. But in reality, the factors inhibiting or facilitating academic success are cumulative and interactive. One way of seeing this is demonstrated by the table on the next page, created by adding criteria one at a time, steadily decreasing the size of the sample by more narrowly defining it. Beginning with the total degree-seeking cohort of 2,387, that collectively generated a 28 percent achievement rate, the addition of each additional criterion raised the achievement rate substantially. The sub-sample of all full-time degree-seeking students, accounting for nearly a third of the total cohort, had an achievement rate of 45 percent. Nearly three-fifths of the full-timers who were tested and did not need remediation had graduated, transferred, or attained sophomore status in good

standing. Over four-fifths of the full-timers with adequate skills at entry who attended three or more major terms were successful. Nine in ten full-timers with adequate skills who were continuously enrolled for three or more terms were classified as achievers. *Ninety-six percent* of the degree-seekers who attended full-time, had college-level skills at entry, attended three or more terms without interruption, and were always in good academic standing, succeeded. For those students who came to the college with an adequate academic background, were able to make a commitment to full-time, uninterrupted study, and who studied sufficiently to earn passing grades, success was almost certain. The explanation for the poor overall achievement rates at PGCC is that so few of the college's students fit this profile.

Percent Achievers, by Cumulative Academic Characteristics			
Cumulative Criteria Sub-samples	Number of Students	Percent of Cohort	Percent Achievers
All degree-seeking students	2,387	100%	28%
▸Mean term credit load 12+	773	32%	45%
▸No remediation required	414	17%	59%
▸Attended 3 + major terms	249	11%	83%
▸Continuously enrolled	194	8%	90%
▸Always in good standing	169	7%	96%

In summary, longitudinal cohort analysis, or following a group of entering students over time, has provided a clearer understanding of student enrollment and progress than cross-sectional studies. Nearly two-thirds of the college's degree-seeking students fail to graduate, transfer, or attain sophomore status in good standing within four years. Persisting through the second and third major terms after entry substantially improved the chances of success, while deficiencies in basic college skills, part-time attendance, interruptions in enrollment, and poor grades hampered achievement. These initial findings from the study of the fall 1990 entering cohort will be supplemented by multivariate analysis currently underway.

Planning for Innovation and Change. Early findings from the longitudinal tracking of the fall 1990 entering cohort have prompted additional research, particularly into the role that remediation plays in student progress. In addition to this and the multivariate analysis of the outcomes of 1990 entering students, the research office plans to follow the progress of students entering in fall 1991 and 1992, adding survey findings

to the tracking data to enhance the college's understanding of student performance. This information will be shared with the newly appointed collegewide retention committee, charged with developing strategies for increasing student persistence at the college.

Graduation Rates

What percentage of PGCC students graduate, and how does this compare with peer colleges? Analyses of enrollment and degree files by staff at the Maryland Higher Education Commission provide one answer. These analyses report the number and percentage of first-time, full-time students graduating or transferring to a Maryland senior institution four years after entering state community colleges. The percentages of full-time entrants earning Associate degrees or transferring to a senior institution without graduating from PGCC for 11 cohorts of fall entrants (1980 through 1990) are shown in the graph below:

The four-year graduation rate of students entering PGCC as full-time students in fall 1990 was 8.9 percent, the second-lowest four-year graduation rate on record. The graduation rate of fall full-time entrants had declined steadily since the 1984 cohort's rate of 13.1. PGCC's graduation rate for full-timers in the 1990 cohort was higher than the comparable rate for Montgomery College (7.8), but was notably lower than the rates for Essex (22.9), Anne Arundel (22.7), and Catonsville (18.3) community colleges.

Analysis. As shown in the graph, concurrent with the decline in graduation rates PGCC had experienced strong growth in the transfer rate to senior colleges and universities in Maryland. Indeed, the *combined* transfer and graduation rate for the 1989 cohort was the highest on record at PGCC. However, the percentage of full-time students transferring without earning an award at PGCC fell nearly five percentage points for students entering PGCC a year later.

Planning for Innovation and Change. Concerns about low graduation rates prompted creation of the longitudinal cohort files now being used to track fall entering classes. These files permit detailed analyses of the term-by-term performance of each cohort, and of subgroups of students within each cohort. More advanced, multivariate analysis has commenced to further explore the correlates of student success. Such studies may suggest policy revisions and new programs to better assist students in meeting their degree goals. The college already has in place an array of student support services, including mentoring and tutoring programs, to promote student persistence. PGCC expends approximately $500,000 a year on such services for underprepared students, not counting the costs of placement testing or remedial instruction.

Transfer to Senior Institutions

As noted above, the rate of transfer to senior institutions exceeds the rate of graduation at PGCC. Where do PGCC transfer students go to continue their education? Using statewide fall enrollment reporting systems, staff at the Maryland Higher Education Commission generate a report each year showing the fall-to-fall enrollment migration of students among Maryland public colleges and universities. The resulting "transfer matrix" provides one indicator of transfer volume and destinations, by showing where students enrolled at a particular campus one fall are enrolled the following fall. Students who transfer during a spring or summer session and do not continue in the fall are missed by this method, as are students who transfer out-of-state or to independent institutions.

The transfer matrix identified 846 students enrolled at PGCC in fall 1993 who were enrolled in fall 1994 at a Maryland public four-year college or university. The most popular transfer destination was the University of Maryland at College Park,

though the number of PGCC transfers to UMCP was the lowest in years. The second most popular transfer destination was the University of Maryland University College. A total of 234 students enrolled at PGCC in fall 1993 were enrolled at UMUC in fall 1994. Third most popular for PGCC transfers was Bowie State University, with 167 students identified as migrating to Bowie over the fall 1993-fall 1994 period.

PGCC Transfers to Maryland Senior Colleges and Universities Fall-to-fall Enrollment Migration			
	1991-92	1992-93	1993-94
Univ. of Maryland College Park	345	293	269
Univ. of Maryland University College	225	242	234
Bowie State University	147	146	167
Univ. of Maryland Baltimore County	67	61	56
Towson State University	50	54	33
Morgan State University	18	17	20
Univ. of Maryland at Baltimore	9	16	18
Salisbury State University	25	26	13
Frostburg State University	12	20	11
Univ. of Maryland Eastern Shore	20	19	10
Coppin State College	2	3	8
University of Baltimore	5	4	4
Saint Mary's College of Maryland	10	5	3
Totals	935	906	846

Examining transfer from PGCC to four-year institutions is an appropriate measure for evaluating a key community college mission. But this exclusive one-way look misses much student movement, including substantial "reverse transfer" from senior institutions to the community college. In recent years, the number of students transferring from senior institutions to PGCC has equalled nearly a third of the total transferring from PGCC to senior institutions. The traffic flow varied by institution. The University of Maryland at College Park, the leading destination of transfers from PGCC, was also the leading source of "reverse transfers" to PGCC in fall 1994. Over

the fall 1993-fall 1994 period, 269 students transferred from PGCC to UMCP while 104 transferred from UMCP to PGCC. An extreme case of the "reverse transfer" phenomenon was Frostburg State University. Four more students transferred from Frostburg to PGCC (15) than from PGCC to Frostburg (11):

Net Transfers, PGCC-Maryland Public Senior Institutions Fall 1993-1994			
	From PGCC to Four-Year	From Four-Year to PGCC	Net Transfers
Univ. of MD-University College	234	43	191
Univ. of MD-College Park	269	104	165
Bowie State University	167	49	118
Univ. of MD-Baltimore County	56	14	42
Towson State University	33	13	20
Univ. of MD at Baltimore	18	1	17
Morgan State University	20	13	7
Coppin State College	8	2	6
Salisbury State University	13	7	6
University of Baltimore	4	1	3
St. Mary's College	3	2	1
Univ. of MD-Eastern Shore	10	11	(1)
Frostburg State University	11	15	(4)
Totals	846	275	571

Analysis. With three campuses of the University of Maryland located in Prince George's County (Bowie State, College Park, and University College), PGCC students have several transfer options close to home. Indeed, nearly four-fifths of PGCC students who transfer to a public university in Maryland attend one of these three. Promoting successful transfer is a major mission of Prince George's Community College. Based on the most recent data available, both the volume and rate of transfer to senior institutions in Maryland are declining.

Planning for Innovation and Change. To promote transfer to three local historically black universities, PGCC has signed agreements with Bowie State University, Howard University, and Morgan State University. The agreements, known as the Connect Program, are intended to improve the transfer rate to these schools and to make the transition for students as smooth as possible. Under the program, students who are ineligible to enroll at the four-year schools due to deficiencies in their high school record or SAT scores are referred to PGCC with the understanding that upon completion of prescribed courses with an appropriate grade point average they are guaranteed admission to the senior institutions.

Performance of Former PGCC Students at Transfer Institutions

How well do PGCC transfers do at senior institutions? Information from the Commission's Transfer Student System (TSS) provides some answers. Four-year, public colleges and universities in Maryland are required to provide the Commission with information concerning transfer student enrollment and performance, such as term of entry, program, cumulative grade point average and credits earned, and bachelor's degree attainment. Transfer students are identified by the receiving institution, and are defined as having transferred in at least 12 credit hours and as having a Maryland community college identified as their last college attended prior to transferring in. The most recent TSS included information about the spring 1994 status of students transferring during the 1989-90 academic year.

Cumulative Grade Point Averages at Maryland Senior Institutions as of Spring 1994 of Community College Students Transferring During 1989-90 (Percentage Distribution)

Grade Point Average	Transfers from Prince George's Community College	All Other Maryland Community College Transfers
0 - .99	4%	5%
1.00 - 1.99	12%	10%
2.00 - 2.99	45%	41%
3.00 - 3.99	34%	40%
4.00	5%	4%
Total students (100%)	899	5,440

A total of 938 former PGCC students were identified as transfers to Maryland public institutions during 1989-90. Grade point averages were available for 899; the remainder withdrew from all courses, took only remedial courses, received all incompletes, took only pass/fail courses, or had some combination of these resulting in a lack of GPA. Eighty-four percent of PGCC's total transfers that year had cumulative GPAs of 2.0 or above as of spring 1994, compared to 85 percent of all Maryland community college transfers.

The Transfer Student System also reported bachelor's degree attainment rates for community college transfers. Degree attainment at senior institutions with at least 20 PGCC transfers during 1989-90 ranged from 22 percent at University College to 73 percent at Towson State University. PGCC students had higher graduation rates than other Maryland community college transfers at Bowie and Towson, but lower rates at Salisbury State University and the Baltimore County, College Park, and University College campuses of the University of Maryland:

Bachelor's Degree Attainment Rates as of Spring 1994
of Community College Transfers during 1989-90

	Transfers from Prince George's Community College	All Other Maryland Community College Transfers
Bowie State University	64% (N=118)	55% (N=53)
Salisbury State University	61% (N=31)	65% (N=259)
Towson State University	73% (N=51)	67% (N=918)
UM-Baltimore County	48% (N=42)	51% (N=886)
UM-College Park	59% (N=383)	63% (N=1,152)
UM-University College	22% (N=240)	26% (N=529)

Analysis. Students transferring from PGCC to public four-year colleges and universities in Maryland on the whole seem to perform satisfactorily, although marginally less well than transfers from other Maryland community colleges.

Planning for Innovation and Change. The college's mentoring and Connect programs are examples of how PGCC strives to enhance the preparation of students for successful transfer to four-year institutions. Strengthening of the college's developmental education program, described below, may also result in better performance of PGCC students at their transfer destinations as well as in coursework at the community college.

Licensure and Certification Examination Results

Graduates of PGCC's health technology programs usually take licensure or certification examinations shortly after graduation. The conventional measure for program evaluation is the pass rate (number passing divided by number tested) of first-time examinees on the entry level exam. Graduates of PGCC's programs in radiography and respiratory therapy have consistently done very well; in some years, every candidate has passed. They continued their good performance in 1995, achieving pass rates of 97 and 94 percent, respectively. Less than half of the college's nuclear medicine graduates passed the examination in 1995; this was the lowest pass rate in the history of the program. During the 1980s it was common for all PGCC nuclear medicine candidates to pass the exam. Graduates of the college's health information technology program achieved an 82 percent pass rate in 1994, the best performance in recent years. Results for the 1995 examination in health information technology will not be available until January 1996.

Pass Rates of PGCC Graduates on Certification Exams
First-time Candidates

	1992	1993	1994	1995
Health Information Technology	67% (N=6)	57% (N=7)	82% (N=11)	N.A.
Nuclear Medicine	78% (N=9)	80% (N=10)	100% (N=13)	46% (N=11)
Nursing	90% (N=77)	80% (N=109)	85% (N=149)	86% (N=98)
Radiography	81% (N=21)	100% (N=15)	97% (N=29)	97% (N=30)
Respiratory Therapy	93% (N=15)	93% (N=14)	100% (N=14)	94% (N=16)

The college's nursing program has had pass rates on the NCLEX-RN exam below national and state averages. After achieving a high point of 90 percent passing in 1992, the pass rate dropped to 80 percent in 1993. It rebounded to 85 percent in 1994 and sustained this level in 1995.

Analysis. The Maryland Board of Nursing expects programs to achieve a minimum pass rate of 85 percent on the licensure examination. The college's graduates have met this standard the past two years. PGCC's nursing department has 90 percent as its minimum target.

Planning for Innovation and Change. In recent years the nursing department has implemented several changes to promote student learning and improve graduate performance on the NCLEX-RN examination. Examples include new admission and progression policies, introduction of interactive software in the new computerized health technology learning center, and revised classroom teaching practices focusing on problem solving and case studies. In addition, students are now required to spend time on drill and practice in the learning laboratory. Examinations in the final course in the nursing sequence are now given on computers, since the NCLEX-RN is now administered exclusively on computer.

Graduate Employment

A quarter of PGCC's students attend to prepare for entry into a new career or update job skills. Students with job-related goals are more likely than other students to complete their PGCC programs. A year after their PGCC graduation, how many of these students are working in jobs related to their community college curriculum?

Eighty-nine percent of the graduates of 1994 were employed when surveyed a year after commencement. Three-fourths were in full-time positions. Seventy-eight percent of the employed graduates were working in jobs related to their community college curriculum. The related-employment rate varied by program. As has consistently been the case, graduates of PGCC's nursing program had success finding related employment, with nine of ten working in nursing positions within a year of graduation. Four-fifths of the 1994 graduates in Business Management were employed in management jobs, a substantial improvement over the related-job rates of earlier classes. Three-fourths of the electronics and computer service graduates had found related employment, a proportion more typical than the unusually low rate reported by 1993 graduates. Three-fifths of the college's graduates in computer technology and information systems found related employment, consistent with the recent past. A similar proportion of the college's accounting graduates were working in jobs related to their PGCC curricula. The college's programs in early childhood education achieved the highest related-employment rate among 1994 graduates--all six graduates were working in related jobs. The prior three surveys had found only

half of the graduates employed in early childhood education jobs. The lowest rates of program-related employment were reported by the 1994 graduates of the college's paralegal and criminal justice programs. The only area with a notable decline in related-employment from last year was allied health, attributable to the fact that only two of the eight responding graduates in Nuclear Medicine had found related jobs.

Related Employment Rates of Career Program Graduates Selected Program Areas, FY91-94				
	FY91	FY92	FY93	FY94
Early Childhood Education	50% (N=10)	50% (N=8)	50% (N=8)	100% (N=6)
Nursing	98% (N=47)	95% (N=42)	91% (N=43)	90% (N=40)
Business Management	55% (N=67)	59% (N=70)	50% (N=56)	80% (N=44)
Electronics/Computer Service	73% (N=11)	73% (N=11)	33% (N=9)	75% (N=8)
Allied Health	100% (N=21)	91% (N=33)	96% (N=27)	74% (N=35)
Computer/Information Systems	61% (N=28)	58% (N=31)	61% (N=23)	63% (N=16)
Accounting	56% (N=18)	86% (N=21)	56% (N=16)	62% (N=21)
Marketing Management	40% (N=5)	40% (N=5)	0% (N=5)	57% (N=7)
Paralegal	46% (N=35)	63% (N=19)	29% (N=17)	55% (N=11)
Criminal Justice	55% (N=11)	50% (N=18)	44% (N=16)	50% (N=16)

Graduates of the prior year's class of 1993 were asked the extent to which completion of their PGCC program helped them get their job, qualify for a promotion, improve job skills, and prepare for a future career. (This question was not included in the statewide survey of 1994 graduates.) A third of the respondents reported that program completion had substantially helped them get their current job or qualify for a promotion. Majorities indicated that their PGCC program had improved their job skills and prepared them for a new career.

PGCC Program Completion Impact on Employment Outcomes Employed Graduates, Class of 1993				
	Extent to which Completing Program Helped Graduate			
	Get Current Job	Qualify for Promotion	Improve Job Skills	Prepare for New Career
5-A great deal	30%	21%	30%	40%
4	5%	13%	24%	21%
3-A fair amount	14%	16%	21%	20%
2	5%	11%	10%	9%
1-Not at all	46%	39%	15%	10%
Substantial help (4,5)	35%	34%	55%	61%
Some help (3,4,5)	49%	51%	75%	81%
Scale mean	2.69	2.67	3.45	3.72
Total respondents (100%)	280	269	275	278

Analysis. Within a year of graduation, most PGCC graduates were employed full-time and those working were typically in jobs related to their PGCC curriculum. Related-employment rates were up for 1994 graduates of most career programs, compared to the success of the prior graduating class of 1993. Only health technology graduates reported less success in securing related employment, and this largely reflected the responses from one program.

Planning for Innovation and Change. The college will continue to monitor the job attainment of its career program graduates. The college has advisory councils for its programs in accounting, computer information systems, construction management, criminal justice technology, drafting technology, early childhood education, electronics engineering/computer service technology, health information technology, hospitality services management, management, nuclear medicine, nursing, office administration, paralegal, radiography, real estate, and respiratory therapy. These advisory councils, composed of practicing professionals in the corporate and public sector, keep program faculty apprised of the latest developments in the job market and in the skills employers expect of college graduates. The college has also embraced use of the formal DACUM (Developing A CUrriculuM) process as a means of responding efficiently and effectively to the need for curriculum development. In addition to

traditional DACUM panels to establish new curricula, PGCC has used the process to assess and enhance existing academic programs.

Graduate Survey Findings

In addition to asking about post-graduation employment and continuing education, statewide graduate follow-up surveys include a number of other questions concerning the student's experience with the community college. Perhaps the most fundamental inquire about the student's primary reason for attending and whether this goal was achieved. In addition to earning an Associate's degree, PGCC graduates primarily sought to prepare for transfer to a four-year college or university, prepare for a career change, or prepare for entry into their first career. Seventy-six percent of PGCC's graduates from 1994 indicated that they had completely achieved their goal in attending the college, up slightly from the 72 percent achievement rate reported by graduates from 1992. Another 19 percent of the 1994 graduates said they had partly achieved their goal in coming to PGCC. Five percent indicated they had not achieved their goal.

Respondents who had continued their studies at a four-year college or university rated their PGCC preparation for transfer highly. Over four-fifths said their preparation had been good or very good. Only four percent gave negative ratings to the community college for its job in helping them get ready for advanced study.

Graduate Ratings of PGCC Preparation for Transfer
(Percent of Survey Respondents)

	1991	1992	1993	1994
Very Good	35%	36%	35%	31%
Good	44	49	48	51
Fair	17	13	15	14
Poor	2	2	1	3
Very Poor	2	1	1	1
Total Respondents (100%)	176	201	151	153

The statewide survey conducted every other year asks graduates who are employed to rate how well the community college prepared them for employment.

The responses from the graduates of 1994 were similar to those given for preparation for transfer, with over four-fifths giving very good or good ratings. The employment preparation ratings were higher than elicited in the surveys of graduates from 1990 and 1992.

Graduate Ratings of PGCC Preparation for Employment (Percent of Survey Respondents)				
	1988	1990	1992	1994
Very Good	33%	28%	30%	31%
Good	48	49	42	52
Fair	16	21	25	15
Poor	2	1	2	1
Very Poor	1	1	1	1
Total Respondents (100%)	310	287	318	199

Analysis. When asked to rate their satisfaction with PGCC and its various programs, survey respondents usually give positive ratings. When the graduates of the class of 1994 were asked, "if you had to do it over again, would you attend this community college?", 87 percent said yes. When asked if they would enroll in the same program, 76 percent said yes. Graduates have consistently rated the preparation they have received from PGCC for immediate employment or further study in very positive terms.

Planning for Innovation and Change. Although customer satisfaction surveys have consistently found most students very pleased with PGCC and its programs and services, the college believes that graduates have been overrepresented in past assessment efforts. During the fall of 1995, current students were surveyed to learn their opinions about the college's student services, such as counseling, registration, and financial aid. It is likely that a version of this survey will become a routine part of the college's assessment program. In addition, the research office is designing a survey of students who exit the college prior to graduation to learn more about these "unexplained leavers." The college suspects that a sizable proportion of these students have achieved their goals at PGCC and should not be counted in attrition statistics as unsuccessful.

Student Evaluation of Teaching

Student evaluation of teaching is a key component of the college's Faculty Professional Growth and Development Plan. Full-time faculty are evaluated by a full-scale evaluation procedure every year for the first five years. Tenured faculty and faculty on annual contracts who have served five years are evaluated every three years of service unless a special evaluation is requested. Full-time faculty who exceed established threshold scores on their previous evaluation may opt for a shorter, more focused package for their periodic evaluation. Evaluation by students is part of the smaller package.

In 1994-95, student evaluations were conducted for 330 teaching faculty. The mean response across all items was 4.3 on a five-point scale. Sixty-seven teachers, or 20 percent of those evaluated, received average student evaluation scores below 4.0. Full-time faculty scoring in this group must, because of their student evaluations, undergo the full-scale evaluation process the next time. Specific student complaints or below-par ratings on certain evaluation items may trigger a conference with instructional administrators which may lead to various faculty remediation activities.

Analysis. Findings from student evaluations of teachers have been remarkably consistent over time. Scale means and the proportion of faculty falling below the threshold for the shorter evaluation process have been essentially unchanged in recent years.

Planning for Innovation and Change. The college is committed to supporting its faculty in their teaching mission. An example is the Faculty Mentor Program, providing teachers with confidential counseling and assistance from designated master teachers to improve their classroom techniques. While student evaluations are an important component of the college's personnel performance assessment program, inclusion of this indicator in a student outcomes assessment is worth reconsideration.

Institutional Indicators

In addition to the mandated common indicators, PGCC has been monitoring basic skills proficiency as measured by placement tests, student enrollment in developmental education, and course pass rates. The first two indicators are especially appropriate for community colleges, since their open admissions policies permit enrollment of students who may be poorly prepared for college work. In addition, many community college students do not have degree or transfer goals. Thus a measure of student achievement at the course level is a useful complement to the traditional graduation and transfer rate measures.

Developmental Education

All of the above measures of student experience and achievement at Prince George's Community College must be interpreted within the context of the college's open admissions policy. The college accepts all applicants who are high school graduates, holders of high school equivalency diplomas, and anyone 16 years of age or older who has left elementary or secondary school. There are no admissions tests or high school rank or grade point average requirements. If you are 16 and want to attend, you can enroll.

To ensure a foundation for college-level instruction, all students seeking enrollment in credit courses are required to demonstrate, either through placement testing or through completion of developmental coursework, basic academic skills proficiency in reading, written expression, and mathematics.

Percent of Prince George's County Public High School Graduates Entering PGCC Each Fall Needing at Least One Developmental Course

	Total Tested in All Three Areas	Needed Remediation	
		Number	Percent
1995	950	635	67%
1994	886	629	71%
1993	945	646	68%
1992	926	630	68%
1991	908	602	66%
1990	1,037	590	57%
1989	1,033	607	59%
1988	1,116	624	56%

Seven in ten students entering the college in fall 1995 needed remediation in at least one basic skill, a proportion similar to that experienced the prior three years. For 1995 graduates of Prince George's County high schools entering PGCC in fall 1995, the proportion needing remediation was two-thirds. This was lower than the

71 percent recorded by 1994 graduates. A fourth of the 1995 graduates of Prince George's County high schools entering PGCC needed remediation in all three areas of reading, English, and mathematics. Two-fifths of the students needed remedial courses in reading; a similar proportion needed English composition. Mathematics was the area of greatest need. Over half of the high school graduates needed remediation in mathematics. Many students need to complete two or more developmental mathematics courses--often starting with beginning arithmetic-- to be ready for, and eligible for, the introductory credit class.

What percentage of students identified as needing remediation enroll in the appropriate developmental courses? What percentage complete remediation? The longitudinal analysis of the fall 1990 entering cohort is illustrative. Five years after entry, approximately two-thirds of the students identified as needing remediation in each basic skill area had taken developmental courses. The percentage completing remediation in each area, however, was considerably lower. Only thirty-five percent of the students needing developmental reading had completed it by the end of spring 1995. The comparable figure for English was 31 percent. Mathematics had the lowest completion rate, partly because a fourth of the students identified as needing remediation were initially placed in a basic arithmetic course. (Students may successfully complete a lower-level developmental class that prepares them for the next developmental class in the sequence. "Developmental completed" as used here means earning a developmental course grade satisfying the prerequisite for introductory credit courses in each area. A student may need to pass two or more developmental classes in a sequence to "complete developmental" in an area.) Only 124 or 13 percent of the 933 students identified as needing developmental mathematics in fall 1990 had completed remediation in math by spring 1995.

Developmental Needs, Coursetaking, and Completion
Fall 1990 Entrants as of the End of Spring 1995

	Reading		English		Mathematics	
	Number	Percent	Number	Percent	Number	Percent
Developmental needed	872	100%	832	100%	933	100%
Developmental course(s) taken	541	62%	589	71%	635	68%
Developmental completed	308	35%	254	31%	124	13%

Analysis. Two-thirds of the students coming to PGCC are deficient in at least one basic skill area. If the fall 1990 entering cohort is representative, substantial numbers of students identified as needing remediation fail to take appropriate developmental classes. Approximately a third (or less) of the students needing remediation complete it within five years of entry to PGCC.

Planning for Innovation and Change. The college has implemented several changes to address the issues revealed by the analysis of developmental studies. Each developmental course now requires students to spend at least 30 hours in the computerized learning laboratory. Despite fiscal constraints, the college has increased the number of full-time faculty and laboratory assistants in educational development during the last two years.

Course Pass Rates

Student performance in individual courses constitutes a fundamental learning outcome. Assessment, reflected in the final course grade, is the responsibility of the faculty member teaching the course. Successful course completion is a prerequisite for progress in a curriculum, and a useful indicator in itself. Examination of student outcomes at the course level is especially appropriate at community colleges, where as many as half the students enrolled in credit courses may have no intention of earning an Associate degree. Course pass rates, the percentage of initial enrollees receiving passing grades, provide a ready means of assessing student course success.

Fall Course Pass Rates by Division				
	1991	1992	1993	1994
Health Technology	91%	92%	95%	92%
Physical and Health Education	90%	86%	85%	85%
Business and Management	82%	83%	82%	84%
Computer/Engineering Technology	80%	80%	80%	81%
Humanities	83%	83%	82%	80%
Social Sciences	76%	78%	75%	78%
English Studies	71%	75%	78%	77%
Science and Mathematics	65%	69%	67%	68%
Educational Development	65%	64%	63%	63%

Analysis. Students passed 77 percent of their classes in fall 1994, matching the all-time high established in 1992. Collegewide pass rates over the 1977-86 period had been stable, at 71-72 percent each fall. Course pass rates have gradually increased since 1986. Pass rates have varied by discipline, with developmental courses and classes in science and mathematics most difficult.

Planning for Innovation and Change. The college's Tutoring Center offers assistance for students in accounting, biology, chemistry, computer information systems, mathematics, and other courses. Services include individual tutoring by appointment, walk-in assistance, and guided small-group study sessions.

Conclusion

This report presented highlights of numerous student outcomes studies conducted by the college's research office, and cited examples of the college's responses to the issues raised by the research findings. The college welcomes reactions to the information presented, and suggestions for improving the assessment and reporting process.

Assessing County Support for Maryland Community Colleges:
An Institutional Research Success Story

Craig A. Clagett

Director of Institutional Research and Analysis
Prince George's Community College

Overview

Institutional research success stories provide new understandings of important issues, lead to changes in campus policies, contribute to improving instruction or student success, save money or raise revenue, or otherwise have a major impact on an institution. Mired down in mandated reporting or responding to the latest ad hoc data request, researchers enjoy too few of these successes. This paper describes a modest library research project—the most sophisticated statistical technique used was simple division—that arguably was the office's most influential ever. It was credited with partially defusing a delicate political situation and preventing a substantial cut in college revenue. The paper concludes with a discussion of why this project was a success, and suggests several strategies for increasing the incidence of such success stories.

Background

Maryland community colleges receive financial support from both the state and their local jurisdiction, as well as revenue from student charges and other income from operations and investments. The relative shares of state, county, and student contributions to college revenues were stipulated in Title 16, Education Article of the Annotated Code of Maryland, as follows: the state was to provide 50 percent, the counties 28 percent, and the students 22 percent of current expenses. The law allowed that the counties not be prohibited from paying more than 28 percent, and the boards of trustees not be prohibited from requiring students to pay more than 22 percent. This has been the case. Statewide, in fiscal year 1991 the 16 locally-governed community colleges received 39 percent of their revenue from local aid, 27 percent from the state, 31 percent from student tuition and fees, and the remaining 3 percent from other sources. (If state paid benefits—$26 million contributed to Social Security, TIAA/CREF, and state retirement plans—are included, the percentages change to 37 percent local, 33 percent state, 28 percent students, and 2 percent other.) The proportion of local aid varied considerably across jurisdictions. In FY91, the local aid share ranged from a low of 29 percent at Prince George's Community College to a high of 50 percent at Dundalk Community College.

The Prince George's Case

Prince George's County is a largely suburban county adjacent to the eastern border of Washington, D.C. With nearly 730,000 residents, the County has a population larger than six states. Driven mostly by in-migration from the District and out-migration to neighboring Maryland counties, the county's black population increased from 14 percent in 1970 to 51 percent in 1990. Enrollment at the community college reflected this change, with student profiles each year a mirror image of the county population. However, with only modest growth in full-time employment over this period, the college's workforce remained predominantly white. This was especially true of the tenured faculty; with almost no growth in positions and little turnover, the full-time faculty was 14 percent minority in 1990—compared to a student body that was 56 percent minority.

Despite the legal guideline stipulating that county aid should provide 28 percent of community college operating budgets, Prince George's County failed to do so during the 1980s. County aid during this period averaged 26 percent of PGCC's budget. Rather than have its overall budget constrained by the county's contribution, the college reached an informal understanding with the county which allowed budgets to grow and the county share to remain below the guideline. At the end of the decade, a "gentlemen's agreement" was reached whereby the County Executive privately pledged to gradually increase county support so that it would meet the 28 percent standard by fiscal year 1992.

The Political Context

The recession in the early 1990s produced a severe fiscal crisis in Maryland. State revenue shortfalls, combined with mandated medicaid and welfare expenditures, implied large cuts in state aid to higher education and to local jurisdictions. County governments were facing similar fiscal difficulties. It was obvious that college budgets were vulnerable. In addition, the community colleges lacked a unified voice in Annapolis. The governor had announced that the State Board for Community Colleges (SBCC) would be abolished, effective June 30, 1992. SBCC, while a government agency, had served as a presence if not an advocate for community colleges in the state capital. With its demise forthcoming, SBCC lost its effectiveness—and most of its staff, as employees left as soon as alternative jobs were found.

In addition to the financial pressures, other factors contributed to a delicate political situation for PGCC. Prince George's County's rapidly changing demographics made race a component of many local political issues, and the community college was not immune. In 1988, a state legislator threatened to hold up $1.2 million in state aid to PGCC pending his subcommittee's review of the college's affirmative action efforts. Later that spring, the college was asked to testify about its minority procurement policy at a County Council meeting. A 1991 law changing the state funding formula for community colleges included an amendment requiring PGCC—and only PGCC—to provide a detailed cost analysis report annually to the General Assembly. Asked why the college was singled out, a state senator replied that in his opinion the college did not adequately reflect or serve the County's fifty percent African-American population. In response to state aid cuts and subsequent tuition

increases, the president of the college's Union of Black Scholars commented, "We are taking this personally because this is a direct hit at our people. If they are not in school, they will be on the street." Several of these issues were played out on the front page of the local newspaper.

The Charge: High Tuition

In 1991, these dissatisfactions coalesced around one issue: PGCC's tuition. Since 1990, the college's tuition had been the highest among Maryland community colleges. Its announced tuition and required fees for FY92 were 12 percent higher than the next most expensive institution. As one state senator put it in a letter to the chairman of the college's Board of Trustees, "Prince George's Community College is almost $20 a credit hour higher than Catonsville! Why?"

While not always the highest, PGCC's student charges were historically above the average for all Maryland community colleges:

Tuition and Required Fees per Credit Hour

Fiscal Year	PGCC	Md CC Average
1992	$58.00	$44.51
1991	53.00	41.10
1990	50.00	38.42
1989	40.00	34.00
1988	40.00	32.00
1987	35.00	29.76
1986	33.00	27.88
1985	30.00	26.18

Table 1

While cognizant that the college's tuition was relatively high, the Board had passed each increase either unanimously or with only one or two no votes. As a group they were, and remained, convinced that the college was operating in a cost-efficient manner and that the increases were needed to maintain the quality of instruction at the institution.

An Institutional Research Initiative

In January 1991, PGCC's director of institutional research and analysis initiated a study of comparative county aid to community colleges in Maryland. This was a proactive effort by the research office; indeed, no one on campus was aware of it until the analysis was completed. This unusual approach reflected the political situation both inside and outside the college, which also influenced the research design. The aid provided by Prince George's County to PGCC would be compared to in-state,

suburban community colleges of similar size. This ensured that the peer group would not differ in governance structure, state funding, or other fundamental ways. Only official, public data sources would be used. Aid would be calculated in all obvious ways—as a percent of county expenditures, as a percent of college budgets, in terms of aid per FTE student. Ten years of data would be analyzed. The final report would include displays of computations as well as trends, and include complete appendices of the compiled data. The intent was to present an unassailable product.

The study's design, work, and dissemination were influenced by internal as well as external politics. It was hoped that the study findings might enlighten college employees, if not reduce their anxiety about the budget and political attacks on the college. Historically, participation in governmental relations and county budget negotiations at PGCC had been restricted to the president, his executive assistant, and the vice president for finance. Institutional research had some supporting involvement, providing environmental scanning for strategic planning and enrollment projections for budget development, and was thus somewhat more knowledgeable than most. But the inside strategy meetings were closely guarded and unrequested input not encouraged. Finally, the research office was aware that securing adequate funding for the college was a presidential and Board responsibility, and thus findings demonstrating consistently low funding compared to neighboring jurisdictions had to be handled with particular care.

Analysis of County Contributions to Community Colleges

In this section, highlights of the analysis are presented. Several ways of assessing the relative contribution of county aid to Maryland community colleges were examined. Four peer counties of Prince George's were selected for the analysis based on size, location, and suburban character: Anne Arundel, Baltimore, Howard, and Montgomery. For comparisons among colleges, of the three in Baltimore County, Catonsville and Essex were included but Dundalk, due to its smaller size, was not. Howard Community College, though smaller than the others, was included in the analysis due to its suburban setting and location in the Baltimore-Washington corridor. None of the six colleges studied received supplemental state funding based on Maryland's unusual wealth factor grants.

Dollar Amount of Aid

Baltimore County provided the most community college aid in fiscal year 1991, contributing a total of $31,913,650 to its three community college campuses. Montgomery County was a close second, providing $31,367,118. Prince George's County contributed $10,032,466 to PGCC, an 11 percent increase from the year before. Howard County provided the largest percent increase, providing nearly $7 million, up 22 percent from FY90. Local aid in FY90 and FY91 to the six colleges under investigation was as follows:

Dollar Amount of Local Aid, FY90-91

College	FY90 Aid	FY91 Aid	1990-91 Change
Montgomery	$28,792,144	$31,367,118	8.9%
Catonsville	13,274,015	14,247,749	7.3%
Essex	10,976,746	11,450,579	4.3%
Anne Arundel	9,674,590	10,547,970	9.0%
Prince George's	9,036,789	10,032,466	11.0%
Howard	5,725,450	6,986,000	22.0%

Table 2

County Share of College Operating Budgets

Statewide,county aid provided 39 percent of community college unrestricted revenues in FY91. The table below shows local aid shares of college budgets for the FY87-91 period:

County Aid Percentage of College Operating Budgets, FY87-91

College	FY87	FY88	FY89	FY90	FY91
Montgomery	45%	47%	47%	46%	47%
Howard	37	40	42	41	46
Essex	44	45	46	41	42
Catonsville	42	42	43	39	39
Anne Arundel	42	42	40	37	38
Prince George's	25	27	27	27	29

Table 3

Despite a guideline stipulated in Maryland law that counties were to provide 28 percent of college revenues, Prince George's County failed to do so over the FY87-90 period. PGCC's peers have had much greater shares of their budgets contributed by their counties. The decline in local aid shares in FY90 reflected an 18 percent increase in state formula aid that year.

County Aid per FTE Student

How much aid do counties provide per student? While aid is not allocated on this basis, calculation of county aid per full-time-equivalent student provided a different way of assessing local support of community colleges:

County Aid per Full-time-equivalent Student, FY87-91

College	FY87	FY88	FY89	FY90	FY91
Montgomery	$2,141	$2,322	$2,316	$2,321	$2,494
Howard	1,357	1,564	1,758	1,811	2,117
Essex	1,377	1,415	1,566	1,417	1,434
Catonsville	1,384	1,368	1,425	1,365	1,358
Anne Arundel	1,270	1,300	1,234	1,131	1,191
Prince George's	784	821	838	947	1,051

Table 4

Throughout the FY87-91 period, Prince George's County provided substantially less aid per student than its peer counties. While these ratios reflect changes in enrollment as well as aid levels—Anne Arundel, for example, experienced a 36 percent increase in enrollment over FY87-91—it is clear that PGCC has operated with considerably less local aid per student than its peers. Aid provided by Howard County increased faster than enrollment growth at Howard Community College, so HCC enjoyed rising levels of local aid per student over the period.

Share of County Budgets Contributed to Community Colleges

Perhaps the most direct way to assess relative county support for community colleges is to calculate the percentage of the counties' general fund expenditures contributed to the college boards of trustees. The Maryland Department of Fiscal Services presents the necessary data in their annual *Local Government Finances in Maryland* publication. For example, in FY90 Prince George's County allocated $9.1 million to PGCC out of total general fund expenditures of $792.6 million, or 1.1 percent of its budget. Similar data for FY86-90 for Prince George's and its peer counties are shown in the following table:

Percentage of County General Fund Expenditures Contributed to Local Community Colleges

County	FY86	FY87	FY88	FY89	FY90
Baltimore	3.2	3.4	3.5	3.7	3.5
Montgomery	2.3	2.6	2.7	2.8	2.5
Anne Arundel	2.6	2.5	2.5	2.4	2.2
Howard	2.0	1.9	2.1	2.3	2.2
Prince George's	1.2	1.2	1.2	1.2	1.1

Table 5

As the above table documents, Prince George's County has allocated 1.2 percent or less of its budget to PGCC, while peer counties have contributed on average twice as large a share of their budgets to their community colleges. Community college funding in Prince George's County appears to be a relatively low priority. Table 6 shows the percentage of county budgets expended for various functions in fiscal year 1990:

General Fund Expenditures, Percentage Allocations to Selected Functions, FY90

Function	Prince George's	Anne Arundel	Baltimore	Howard	Montgomery
Board of Education	37.1%	43.0%	39.7%	47.2%	46.4%
Public safety	17.4	20.1	16.8	14.2	14.0
General government	12.0	13.1	5.8	10.2	6.5
Debt service	6.7	9.5	6.3	7.9	9.3
Public works	6.1	5.8	9.7	7.9	8.7
Recreation/parks	5.7	1.7	1.6	2.3	5.1
Health	1.8	2.2	3.7	1.5	1.4
Libraries	1.7	1.7	2.2	2.0	1.8
Social services	1.3	0.4	1.0	2.1	2.8
Community college	1.1	2.2	3.5	2.2	2.5
Budget (millions)	**$793**	**$444**	**$828**	**$256**	**$1,175**

Table 6

Share of Total County Expenditures from All Revenue Sources

An additional way of assessing county support based on expenditure data was an examination of the share of total county expenditures of revenue from all sources, including restricted fund federal and state grants. Local politicians often cite these larger figures which include intergovernmental revenues. In the case of Prince George's, perhaps the low level of county general fund contributions reflected disproportionately larger revenues contributed from other sources. If the college was receiving adequate funding from other sources, the county might feel justified in continuing its low contributions. In FY90, Prince George's County expended a total of $1,487,645,351. Of this amount, $36,998,802 went to the community college. By this method, PGCC received 2.5 percent of total Prince George's County expenditures for fiscal year 1990. Similar calculations for the County and its peers for FY86-90 are shown in Table 7.

Inclusion of expenditures of restricted fund revenues did not change the central finding of the analysis: Prince George's County expended a substantially smaller share of its revenues on its community college than its peer counties expended on their community colleges.

Percentage of Total County Expenditures Expended for Local Community Colleges

County	FY86	FY87	FY88	FY89	FY90
Baltimore	6.5	7.4	7.5	7.3	7.1
Anne Arundel	4.2	4.3	4.1	4.0	4.3
Montgomery	4.3	4.5	4.6	4.5	4.3
Howard	3.9	3.8	3.8	5.4	4.2
Prince George's	3.0	3.0	2.7	2.6	2.5

Table 7

Dissemination of the Analysis

The initial version of the above analysis was first shared in a confidential written report to the president in early February 1991. At the request of the president, it was shared with the president's cabinet the next day. The following week, the findings were shared with the Board of Trustees at a closed dinner meeting; the Board then asked that the same presentation be made at their public meeting which followed. The Board also asked that a similar analysis be made of state funding. Compared to county aid and student charges, state aid contributions were found to be relatively similar across peer colleges and relatively stable over the study period. Variation in county aid explained more of the variation in budget and tuition levels than state aid differences.

Following its disclosure at the open Board meeting, the analysis was shared with several campus divisions at the request of PGCC administrators who wanted their employees to gain a better understanding of the county's support for the college. By the end of February, the findings were well known on campus. However, immediate dissemination off campus was not authorized, reflecting the sensitive nature of ongoing budget discussions, continuing uncertainty as to eventual state cuts to the college and the county, and concern that release of the information might be perceived as confrontational. The first off-campus release of the information was a mention of the existence of the analysis in a reply to a letter from a state senator concerning our tuition level. No data was shared, only the central finding that the county's support was historically low compared to its neighboring peers. Although some administrators argued for full publication of the data in the college's major public relations print piece aimed at county and state policymakers (the college's *Master Plan*), the president decided against this. Instead, he authorized one sentence under the document's planning assumptions section: "Prince George's County will continue to provide a lower level of community college support than nearby peer jurisdictions."

The law requiring the college to provide a special cost analysis report to the state legislature provided a rationale for full public release of the county aid analysis. Using this legislative attack on the college to its advantage, the college included the entire comparative county aid analysis in the report submitted to Annapolis at the end of August, 1991. Once this decision had been made, the Board of Trustees asked for a meeting with the County Executive so the complete information could be presented to him in person. In September the director of institutional research made a formal presentation to the County Executive and his staff in the Executive's conference room in the county office building. The tone was informational, not confrontational, and set in the context of the state reporting requirement. After this meeting, the college decided to share the findings widely. Three tables of comparative data were included in the 1992 edition of the college's *Master Plan*. The development office was authorized to use the information where appropriate in its fundraising efforts.

An Institutional Research Success Story

Dissemination of the comparative county funding analysis succeeded in defusing the high tuition charge, by deflecting most criticism away from the college and to the historically low level of county suport. Legislators and students came to understand that differences in student charges reflected differences in county aid. County budget staff privately acknowledged that a planned cut in the county's contribution to the college was averted because of the persuasive case made by the college that the county had consistently underfunded it in the past.

What lessons can institutional researchers learn from this example? The following suggestions come to mind as a result of this case study:

1. **Stay attuned to the external and internal environments.** You need to know the decisions facing top management, and the contexts in which the decisions are to be made. Pay particular attention to the politics inside your institution as well as relations with external actors. Be alert for opportunities, and recognize that the timing of your contribution may be crucial to its success.

2. **Be proactive—take the initiative.** Once you identify an opportunity where research findings might be especially pertinent and influential, go forward. While you must be sensitive to protocol and personalities, if you are confident in your research and its potential contribution, pursue it to completion and ensure its findings reach the appropriate people.

3. **Consider library research.** There's more to institutional research than running SPSS and doing surveys. Be open to different approaches and seek out new data sources. A specific

recommendation: get to know what's available in the legislative services library in your state capital.

4. **Keep data analyses simple.** This is Middaugh's "fourth commandment" (Michael F. Middaugh, *A Handbook for Newcomers to Institutional Research*, NEAIR IRIS No. 2, p. 23) and this case study demonstrates the value of its advice. Particularly when dealing with external audiences, simple analyses comprehensible to non-specialists are advantageous. Obviously, you must use techniques appropriate to the task. But choosing a sound method that is also easy to present to your target audience can increase the effectiveness of your research.

5. **Turn reporting burdens to your advantage.** External reporting is usually the part of the job least enjoyed by institutional researchers, with good reason. But as the leverage provided by the required cost report in this case study demonstrates, occasionally you can change a compliance exercise into a positive experience for your institution.

6. **Get lucky.** Sometimes the data tell the story by themselves. While data ambiguity typically provides room for alternative interpretations, sometimes you uncover information that is clear-cut and especially pertinent to the issue of the day. You won't get this lucky often unless you are regularly tilling virgin ground.

Paper delivered at the 19th Annual Conference of the North East Association for Institutional Research, Washington, D.C., November 16, 1992.

Maryland Community College Workforce Training Evaluation and Needs Assessment Survey

Maryland Association of Deans and Directors
of Continuing Education/Community Services

July 1995

163

Maryland Community College Workforce Training Evaluation and Needs Assessment Survey

Sponsored and Conducted by the

Maryland Association of Deans and Directors
of Continuing Education/Community Services

With Support from the
Maryland Community College Research Group

Project Coordinator

Andrew L. Meyer
Dean of Continuing Education
and Extended Learning Programs
Anne Arundel Community College
Arnold, Maryland 21012

Report Author

Craig A. Clagett
Director of Institutional Research
and Analysis
Prince George's Community College
Largo, Maryland 20772

Data Analysis

Hershel J. Alexander
Research and Planning Analyst
Prince George's Community College
Largo, Maryland 20772

Gary Durr
Dean of Continuing Education
Allegany Community College
Cumberland, Maryland 21502

Andrew L. Meyer
Dean of Con. Ed./Extended Learning
Anne Arundel Community College
Arnold, Maryland 21012

Mary Lynn Devlin
VP, Business & Continuing Ed. Center
Baltimore City Community College
Baltimore, Maryland 21215

Karen Merkle
Vice President of Continuing Education
Carroll Community College
Westminster, Maryland 21157

Nancy Renner
Assoc. Dean, Con. Ed./Comm. Services
Catonsville Community College
Catonsville, Maryland 21228

Michael Zekonis
Assoc. Dean of Continuing Education
Cecil Community College
North East, Maryland 21901

Becky Cockerham
Acting Dean, Con. Ed./Comm. Services
Charles County Community College
LaPlata, Maryland 20646

Ellen Long
Assoc. Dean of Continuing Education
Chesapeake College
Wye Mills, Maryland 21679

Charlotte Bartels
Acting Assoc. Dean/Continuing Studies
Dundalk Community College
Baltimore, Maryland 21222

Joseph Testa
Assoc. Dean/Instr. and Educ. Services
Essex Community College
Baltimore, Maryland 21237

Shirley Davis
Acting Assoc. Dean of Con. Education
Frederick Community College
Frederick, Maryland 21701

Lowell Bender
Assoc. Dean of Continuing Education
Garrett Community College
McHenry, Maryland 21541

George E. Elliott
Dean of Continuing Education
Hagerstown Junior College
Hagerstown, Maryland 21742

James F. LaCalle
Dean of Comm. and Business Services
Harford Community College
Bel Air, Maryland 21015

Nancy Smith
Exec. Director, Continuing Education
Howard Community College
Columbia, Maryland 21044

Percy Thomas
Provost of Continuing Education
Montgomery College
Rockville, Maryland 20850

Hercules Pinkney
VP, Con. Ed. and Evening Programs
Prince George's Community College
Largo, Maryland 20772

Nola Arnold
Dean, Community & Continuing Educ.
Wor-Wic Community College
Salisbury, Maryland 21801

Maryland Community College Workforce Training Evaluation and Needs Assessment Survey

Workforce training comprises a major contribution of community colleges to the economic development of the jurisdictions they serve. For years, Maryland community colleges have entered into contractual agreements with businesses across the state to provide training and related services to their employees. In most counties throughout the state, the local community college has emerged as the leading provider of workforce training. In some instances, partnerships among colleges have enhanced the local provider's capabilities to provide employee training for local businesses.

The community colleges in Maryland have also entered into partnerships with the Maryland Department of Economic and Employment Development (DEED), the leading state agency responsible for workforce development. In 1988, the community colleges, through a Partnership for Workforce Development Grant from the Sears Foundation, spearheaded the "Maryland Community Colleges--Building Business in Maryland" campaign. The Department of Economic and Employment Development was a valuable partner in the campaign.

In addition to providing instruction and services to meet employer needs, the colleges have been committed to evaluating their performance. Formal evaluation of educational outcomes should include continuing education as well as degree-credit programs (Bragg and Jacobs, 1990; Clagett and McConochie, 1991). Efforts to systematically assess the effectiveness of continuing education provided by Maryland community colleges began in 1986 with the appointment of an advisory group of continuing education deans and institutional research directors. Meeting under the direction of staff of the Maryland State Board for Community Colleges over a two-year period, this group suggested improvements to continuing education data systems, developed an annual report of basic trend data, reviewed course evaluation forms used by the individual colleges, and developed a statewide survey of continuing education students. The results of this two-year effort were published in two reports, *Continuing Education Outcomes* and *Continuing Education Student Follow-up Report* (Maryland State Board for Community Colleges, 1988).

The Maryland studies served as a model for a similar assessment conducted in Iowa (Iowa Department of Education, 1991), which in turn provided an example for a study of workforce training provided by Michigan's community colleges (Wismer and Zappala, 1993). Completing the circle, the Michigan survey's focus on workforce training provided by contractual agreements spurred interest in a similar survey in Maryland. This report describes the methodology and reports the findings of a survey of businesses and organizations that had received workforce training under contract with Maryland community colleges during 1993-94.

Study Design

Following the approach used in earlier studies of workforce training provided under contract by community colleges in New York (Fadale and Winter, 1988), Iowa (Iowa Department of Education, 1991), and Michigan (Wismer and Zappala, 1993), a mail survey of businesses and organizations was conducted during the spring of 1995. The specific goals of the study and the methodology used are described in this section.

Research Purpose

The initial research goals were similar to those of the Iowa survey:

1. Develop a profile of businesses and organizations served by Maryland community colleges' contract training programs.

2. Determine employer satisfaction with the workforce training provided by Maryland community colleges.

3. Identify future workforce training needs of the organizations recently served by Maryland community college contract training.

4. Determine ways in which Maryland community colleges can provide better service to Maryland employers.

Survey Methodology

During January and February of 1995, members of the Maryland Association of Deans and Directors of Continuing Education/Community Services met with the directors of institutional research of Frederick and Prince George's community colleges to develop the study methodology and survey instrument. The questionnaire, which is included in the appendix, was largely based on the Michigan study and an earlier survey of businesses in Prince George's County conducted by the local community college, the county chamber of commerce, and a branch of the state university (Clagett and Huntington, 1988).

To avoid selection bias, surveys were sent to all businesses and organizations that had received workforce training under a contract arrangement during 1993-94. Employers surveyed included profit, nonprofit, and governmental organizations. Referrals into open-enrollment courses, apprenticeship training, Job Training Partnership Act courses, courses provided to nursing home residents, and in-house training to community college staff or students were *not* included. Continuing education staff at each college administered the mailings of the common survey instrument. Completed surveys were

returned unopened to the Office of Institutional Research and Analysis at Prince George's Community College for data entry and analysis.

A total of 1,021 employers were surveyed. When analysis commenced, 561 usable questionnaires had been returned, for an unadjusted response rate of 55 percent. The number of surveys mailed and returned for each college was as follows:

Survey Response by Participating College
Maryland Community College Workforce Training Survey

Community College	Surveys Mailed	Surveys Returned	Response Rate
Allegany	62	49	79%
Anne Arundel	60	38	63%
Baltimore City	40	19	48%
Carroll	52	34	65%
Catonsville	164	58	35%
Cecil	20	14	70%
Charles County	37	26	70%
Chesapeake	43	25	58%
Dundalk	116	30	26%
Essex	110	65	59%
Frederick	29	15	52%
Garrett	18	16	89%
Hagerstown Junior	58	32	55%
Harford	47	39	83%
Howard	47	30	64%
Montgomery	39	15	38%
Prince George's	31	16	52%
Wor-Wic	48	40	83%
TOTAL	1,021	561	55%

Characteristics of the Respondents

Respondents represented the diversity of industries present in Maryland. However, three industrial classifications accounted for over three-fifths of the respondents: government (23 percent), manufacturing (20 percent), and health care (20 percent). Education was the only other category represented by at least ten percent of the respondents. Only seven respondents were in agriculture or mining. Employers in retail and wholesale trade were also not prevalent among the survey respondents, with 11 and 9 respondents respectively.

Industrial Classification
Maryland Community College Workforce Training Survey Respondents

Industry	Number	Percent
Government	131	23%
Manufacturing	113	20%
Health care	111	20%
Education	61	11%
Transportation/communications/utilities	40	7%
Finance/insurance/real estate	34	6%
Business services/information processing	24	4%
Legal/social services	22	4%
Construction/crafts and trades	19	3%
Retail trade	11	2%
Wholesale trade/distribution	9	2%
Agriculture/mining	7	1%

The survey asked how many employees were at the respondent's location. Nearly a fifth of the respondents failed to provide a usable response. A fifth of those providing an answer had fewer than 25 employees. At the other extreme, 11 of the respondents (or two percent) had 5,000 or more employees at their location. The median number of employees, with half of the respondents having more and half having less, was 100. The distribution of respondents by number of employees was as follows:

Size of Business (Number of Employees at Site) Maryland Community College Workforce Training Survey Respondents		
Number of Employees	Number	Percent
0 - 24	93	21%
25 - 49	69	15%
50 - 99	63	14%
100 - 249	94	21%
250 - 999	76	17%
1,000 - 4,999	46	10%
5,000 and above	11	2%

As the above two tables suggest, the survey respondents represented the variety of businesses and organizations operating in Maryland, both in the nature of their work and in the size of their operation.

Employer Goals for Community College Training

A major purpose of the study was to determine the extent of employer satisfaction with the workforce training they contracted for with Maryland community colleges. But satisfaction is related to employer expectations and goals. A useful beginning is to know how many employees participated in community-college-provided training:

Employee Participation in Training Maryland Community College Workforce Training Survey Respondents		
Number of Employees Trained	Number	Percent
Less than 10	128	23%
10 - 24	150	27%
25 - 49	102	19%
50 - 99	67	12%
100 or more	103	19%

The number of employees participating in contract training at each site ranged from less than ten to over 100. The median was 25.

The major reason given by employers for choosing a community college for their workforce training was the perceived cost effectiveness, or value for the dollar, provided by community college instruction. Nearly seven in ten respondents indicated that such value was an important reason for their selection of the community college. Other reasons cited by half of the respondents were the college's ability to customize training to meet their specific needs and the quality of instruction provided. Two-fifths were repeat customers, who contracted for training in 1993-94 because they had had a good experience with the college in the past. A similar proportion cited the fact that community colleges could deliver the instruction at the business site as a reason they selected the community college. Thirty-seven respondents, or seven percent, said that they used the community college because others had been satisfied with the instruction and services offered by the college.

Reasons for Selecting Community College for Training
Maryland Community College Workforce Training Survey Respondents

Reason	Number	Percent
Cost-effective/good value	388	69%
Customized to meet specific need	329	59%
Quality of instruction	279	50%
Good results in past with college	236	42%
Training provided on-site	220	39%
Referred to college by others	37	7%

What was the primary goal employers had in mind when they contracted with the community college for workforce training? Three-fourths wanted to upgrade the quality of employee performance in their current jobs. But many employers also were interested in preparing employees for new positions by training them in new skills. Nearly half of the respondents indicated that preparation for a new skill or job classification was important. Nearly two-fifths agreed that providing opportunities for employee self-enrichment was an intended purpose of the training. A number of respondents indicated that the training was mandated either by the employee's profession or by law.

Primary Goal for Training Maryland Community College Workforce Training Survey Respondents		
Primary Goal	Number	Percent
Upgrade quality of employee performance in current job	413	74%
Prepare employee for new skill or job classification	252	45%
Self-enrichment of employee	212	38%
Mandated by profession	123	22%
Mandated by law	77	14%

Employer Satisfaction with Community College Training

How satisfied were the employers with the training provided by Maryland community colleges? The questionnaire asked this question directly and respondents gave overwhelming approval. Nearly sixty percent of the respondents said they were very satisfied, and another 37 percent said they were satisfied. Overall, 535 of the 555 respondents to this question or *96 percent expressed satisfaction with the training provided by the community college*. Twelve respondents, or two percent, were not certain and only eight of the 555 expressed dissatisfaction.

Satisfaction with Quality of Community College Training Maryland Community College Workforce Training Survey Respondents		
Level of Satisfaction	Number	Percent
Very satisfied	331	60%
Satisfied	204	37%
Uncertain	12	2%
Unsatisfied	4	<1%
Very Unsatisfied	4	<1%

The survey asked if the respondents would recommend the community college to other businesses or organizations that had similar employee training goals. The employers gave nearly unanimous assent. *Ninety-six percent of the respondents said they would recommend the community college*. Only 12 of the 557 respondents to this question said they would not recommend the college.

Recommend Community College To Others? Maryland Community College Workforce Training Survey Respondents		
Recommend Community College?	Number	Percent
Yes	533	96%
Not sure	12	2%
No	12	2%

The final question probing employer satisfaction with the community college asked if the organization would use the college again if it had further training needs. *Ninety-three percent of the respondents said they "definitely" or "probably" would use the community college again*. Only eight of the 553 respondents to the question said they would not use the community college for future training.

Use Community College for Training Again? Maryland Community College Workforce Training Survey Respondents		
Use Community College?	Number	Percent
Definitely would	316	57%
Probably would	200	36%
Not sure	29	5%
Probably would not	5	1%
Definitely would not	3	<1%

Future Training Needs

The organizations surveyed were asked about their anticipated training needs over the next three years. The responses to this part of the survey must be interpreted with extreme caution. This study did *not* attempt to ascertain the training needs of all businesses in the state or in each college's service area. The responses reflect *only the expectations of organizations previously served by community college contract training* and only the subset of that group *responding to the survey*. Generalizing the findings to the larger populations of businesses and organizations in each service area or in the state would be inappropriate. Given these caveats, however, ascertaining the anticipated training needs of current customers is certainly useful for program planning. The greatest need for technical training was in computer applications, with half the respondents stating that they had substantial need for this kind of training:

Anticipated Employee Technical Training Needs
Maryland Community College Workforce Training Survey Respondents

Type of Training	N	No Need (Rated 1)	Some Need (Rated 2-3)	Substantial Need (4-5)	Scale Mean
Computer applications	545	17%	33%	50%	3.33
Interpersonal relations	542	22%	35%	44%	3.09
Written/oral communications	545	24%	44%	32%	2.80
Customer service training	547	36%	34%	29%	2.56
Telecommunications/ networking	541	36%	43%	21%	2.39
Modern office technologies	544	40%	45%	16%	2.24
Basic skills (reading, math)	546	58%	27%	15%	1.97
Manufacturing/ industrial job skills	537	72%	13%	14%	1.69
Languages (foreign, English as 2nd Lang.)	540	78%	18%	4%	1.39

Second only to computer training was the need for employee improvement in interpersonal relations and team building, with 44 percent of the respondents indicating classes in these topics were substantially needed (rated 4 or 5 on a five-point scale). A third of the respondents gave employee written and oral communications a similar rating of need. Other technical training areas cited as needed, at least to some degree, by a majority of the respondents included customer service training, telecommunications and networking, and modern office technologies.

Among management training alternatives, respondents gave the highest rating of need for classes in supervision and leadership. Nearly half of the respondents said the need for such training was substantial, indicated by their 4 and 5 ratings on this item. Not far below in perceived need was training in Total Quality Management or Continuous Improvement methods. The stated need for other types of management training was much less widespread. While each type of training included in the questionnaire elicited a rating of substantial need from some respondents, in half the cases a majority indicated no need at all:

Anticipated Management Training Needs
Maryland Community College Workforce Training Survey Respondents

Type of Training	N	No Need (Rated 1)	Some Need (Rated 2-3)	Substantial Need (4-5)	Scale Mean
Supervision/ leadership	545	22%	30%	47%	3.17
TQM/Continuous Improvement	540	27%	29%	44%	3.03
Personnel and labor law	539	42%	43%	15%	2.17
Career planning/ goal setting	538	48%	42%	10%	1.97
Accounting/financial analysis	538	52%	39%	9%	1.88
Marketing/sales/ promotion	535	60%	27%	13%	1.81
Environmental management	539	59%	30%	10%	1.79
International trade/ export/import	537	84%	14%	2%	1.26

Whether included in the previous forced-choice questions or not, respondents were asked to describe the type of training *most needed* by their employees. Responses to this open-ended question were consistent with the quantitative ratings, with computer applications, supervision and leadership, team building and interpersonal relations, and written and oral communications most frequently cited. The only other responses given by at least 30 (or five percent) of the respondents were Cardiopulmonary Resuscitation (CPR) and customer service training. Other training topics mentioned by at least ten respondents included first aid, Total Quality Management, child care, basic mathematics, nursing, and computer networks. A number of specific manufacturing techniques and health care subjects also received multiple mentions.

Most Needed Training
Maryland Community College Workforce Training Survey Respondents

Type of Training Most Needed	Number of Mentions	Percent of Respondents
Computer applications	107	19%
Supervision/leadership	53	9%
Team building/interpersonal relations	39	7%
Written and oral communications	37	7%
Cardiopulmonary Resuscitation (CPR)	36	6%
Customer relations/customer service	30	5%

In addition to asking prior clients what kinds of employee training they anticipated would be most needed over the next three years, the survey asked respondents to rate their needs for several training-related services, such as needs assessment studies, consulting services, and assistance in seeking funds to support training efforts. The community colleges sponsoring the survey were ready and able to provide the listed services and wanted to gauge employer interest in them. For the most part, employer interest was modest. The only item eliciting a rating of substantial need by at least a quarter of the respondents was customized job-skill training. Half of the respondents indicated at least some need for an analysis of employee needs. The other five services received ratings of "not needed" from a majority of the respondents. It is apparent that most of the clients of community college contract training are most interested in the kinds of specific employee training they have received--and been overwhelmingly satisfied with--in the past. While a third or more of the respondents indicated at least some need for related services, it is the quality, customized instruction they most favor.

Anticipated Need for Training-related Services Maryland Community College Workforce Training Survey Respondents					
Type of Service	N	No Need (Rated 1)	Some Need (Rated 2-3)	Substantial Need (4-5)	Scale Mean
Customized job-skill training	541	40%	35%	25%	2.40
Help in seeking funds for training	539	55%	27%	18%	2.08
Analysis to assess employee needs	547	49%	38%	12%	2.03
Televised/computer instruction	542	52%	34%	14%	2.02
On-site testing and advising services	543	56%	33%	11%	1.85
Consulting services	536	55%	37%	8%	1.81
Assistance enrolling employees in college	543	64%	31%	6%	1.61

The survey's second open-ended question asked what the community college could do to help the employers improve the performance of their organization or operate their business more effectively. The most prevalent comment was to continue doing what the college had done in the past, a reflection of the widespread employer satisfaction with prior contractual arrangements. Nearly as prevalent were suggestions for specific courses or training programs. The third most common response theme concerned publicity and making sure the business community was made aware of college offerings. Other suggestions made by multiple respondents included offering different training formats (e.g., one-day seminars, Saturday classes), providing on-site instruction, keeping up-to-date (specifically with computer technology), and maintaining low costs so that employers could afford to continue to contract for training. Employer suggestions were almost always phrased in complimentary contexts. Only a handful of respondents indicated an area of college performance in need of improvement. All respondent comments are included verbatim in the appendix.

The questionnaire concluded by asking if the respondent would like to be contacted for further discussion of their employee educational and training needs. A fourth of the respondents said yes and provided their name and telephone number.

Conclusions

Workforce training provided by community colleges under contractual arrangements with employers is an established and successful practice in Maryland. A mail survey of 1,021 employers who had contracted with Maryland community colleges during 1993-94 elicited 561 usable responses, for an unadjusted response rate of 55 percent. The respondents represented organizations ranging in size from less than 25 employees to firms with over 5,000 workers. Government, manufacturing, and health care provided 63 percent of the respondents, although all industrial classifications were represented among the respondents.

Although three-fourths of the respondents had contracted for training to upgrade the quality of their employees' performance in current positions, preparing them for new jobs involving new skills was also important. Nearly half of the respondents said such advancement was a primary goal. Community colleges were selected to provide the training because of their good value for the money invested, because they customized training to meet specific employer needs, and because of the quality of instruction they provided.

Responding organizations were overwhelmingly pleased with the training provided by Maryland's community colleges.. The survey found that:

- 96 percent of the respondents were satisfied with the training
- 96 percent would recommend the community college to others
- 93 percent said they would use the community college again

Respondents were asked what kinds of training they would need over the next three years. Training in computer applications was most frequently mentioned. Other types of training with respondent interest included supervision and leadership, team building and interpersonal relations, written and oral communications, customer service training, and Total Quality Management/Continuous Quality Improvement. Many specific types of training were also identified by individual respondents, including Cardiopulmonary Resuscitation (CPR), first aid, child care, basic mathematics, and several manufacturing methods. The survey also asked about employer needs for related services, such as consulting and employee needs assessment studies. While some respondents indicated interest in these other services, customized job-skill training was the primary focus of their relationship with the community college. Judging from the findings of this study, Maryland employers have been very pleased with the training provided by the state's community colleges.

Appendix

Listing of the verbatim comments of respondents in response to the question "What can the community college do to improve the performance of your organization or help you operate your business more effectively?

Though not reproduced in this workbook, the complete listing of verbatim comments was included in the report.

References

Bragg, D.D., and Jacobs, J. (1990). A framework for evaluating community college customized training. Paper delivered at the 16th Annual Conference of the National Council on Occupational Education.

Clagett, C.A., and Huntington, R.B. (1988). *Prince George's County Business Training Needs Assessment.* Largo, MD: Office of Institutional Research and Analysis, Prince George's Community College.

Clagett, C.A., and McConochie, D.D. (1991). Accountability in continuing education: Measuring noncredit student outcomes. *AIR Professional File*, 42. Tallahassee: Association for Institutional Research.

Fadale, L.M., and Winter, G.M. (1988). *Impact of Economic Development Programs in SUNY Community Colleges: A Study of Contract Courses.* Albany: Two-year College Development Center, University at Albany, State University of New York.

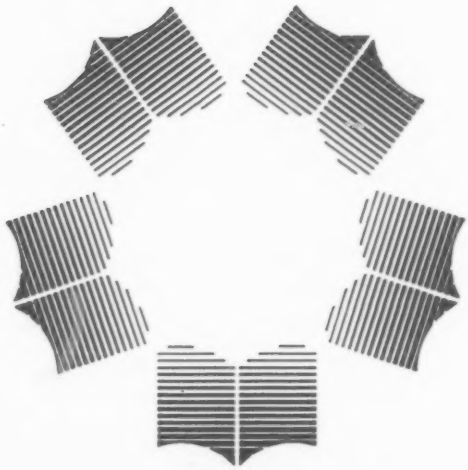
Iowa Department of Education (1991). *A Study of the Impact of Iowa Community College Continuing Education Programs.* Des Moines: Iowa Department of Education.

Maryland State Board for Community Colleges (1988). *Continuing Education Outcomes*. Annapolis: Maryland State Board for Community Colleges.

Maryland State Board for Community Colleges (1988). *Continuing Education Student Follow-up Report*. Annapolis: Maryland State Board for Community Colleges.

Wismer, J.N., and Zappala, J. (1993). *Michigan Community College Workforce Training Programs.* Michigan Community College Community Services Association.

Prince George's Community College



PRINCE GEORGE'S
COMMUNITY COLLEGE

An Investment that Pays

PGCC
Primary Provider of Higher Education

- Over 30,000 county residents take classes at PGCC each year
- PGCC is the first choice of county residents for higher education
- PGCC enrolls three times as many county residents as the second most popular institution
- Half of all county high school students who go to college attend PGCC at some point in their college careers
- PGCC is the number one provider of noncredit continuing education, serving more county residents than proprietary schools, employer-based training, or other postsecondary institutions

PGCC
Provides Opportunities

- Provides the only entrance to higher education for many county residents
- Offers location and scheduling options for working students
- Enrolls more African-Americans than any other college or university in Maryland
- Enrolls three-fifths of all county residents attending college part-time

PGCC

Serves the Underprepared Student

1995 County School Graduates Entering PGCC
(Total tested = 950)

Remediation needed	67%
In one skill area	24%
In two skill areas	18%
In all three skill areas	25%

Basic skills assessed: Reading
Composition
Mathematics

PGCC
Works to Improve County Schools

During 1994-95:

2,000 K-12 teachers received in-service training, primarily in the sciences

200 Middle School students attended science and math workshops

800 High school students received college testing and counseling services

PGCC
Prepares Students for Advanced Study

1,000 PGCC students transfer to four-year colleges and universities each year

UMCP
UMUC
Bowie State

Also, the "Connect Program" prepares students for admission to Bowie State, Howard University, and Morgan State

PGCC

Trains Needed Professionals

Graduates since 1991:

500 Nurses

300 Health technicians

300 Programmer/analysts

300 Para-legals

200 Accountants

150 Engineering technicians

100 Child care workers

92% live in Prince George's County

PGCC

Maintains a Skilled County Workforce

through Continuing Education, Noncredit Programs

In-service training each year:

300 Police officers

1,000 Real estate professionals

Professional certification classes include:

- Automotive Service Excellence (ASE)
- Cardiopulmonary Resuscitation (CPR)
- Certified NetWare Engineer (CNE)
- Commercial Drivers License (CDL)
- Emergency Medical Technician (EMT)
- Geriatric/Medicine Aide
- Master Electrician
- Swimming Pool Management

Serving 10,000 residents a year

PGCC

Meets Diverse County Needs

Each year:

- Center for Business and Industry Training provides customized contract training to 50 county businesses

- Children's Developmental Clinic serves 500 children with special needs, plus 350 parents in parenting program

- Senior Citizens Program helps 6,000 seniors stay active and fit

- "NASA-Collegiate" and "Science and You" programs prepare 50 minority students for advanced education in science

PGCC

Increases Incomes and Tax Revenues

Median Annual Income, 1993

PGCC
Builds a Better Community

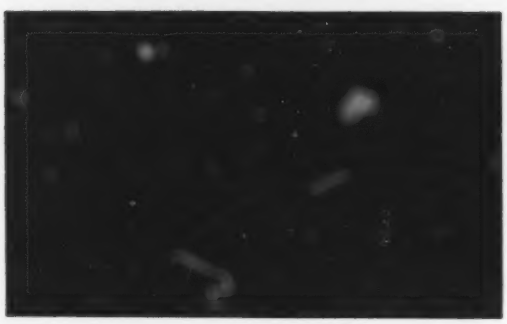
- Associate degree holders have lower unemployment, less reliance on public assistance, higher incomes, greater rates of volunteering and charitable giving, and pay more taxes, than high school graduates

- Many attending the college improve basic skills, gain self confidence, clarify career goals, enhance job prospects, and learn the fundamental life skills needed to function in today's technological society

PGCC
Operates Efficiently

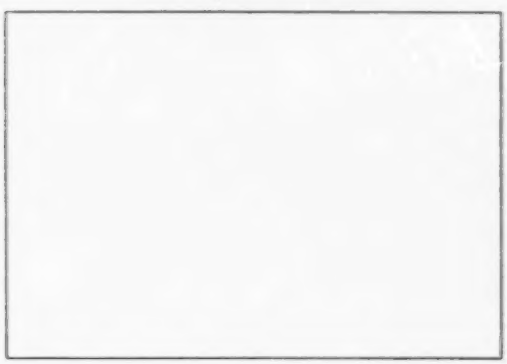
Expenditures per Student

$4,120



PGCC

$4,668



Maryland Community College Average

PGCC
Receives Diminishing State Aid

State Contribution to College Budget

	Current Dollars	Inflation Adjusted
FY90	$11,367,820	$13,458,656
FY95	10,805,335	10,805,335
FY90-95	- $562,485	- $2,653,321
Decrease	- 5%	- 20%

PGCC

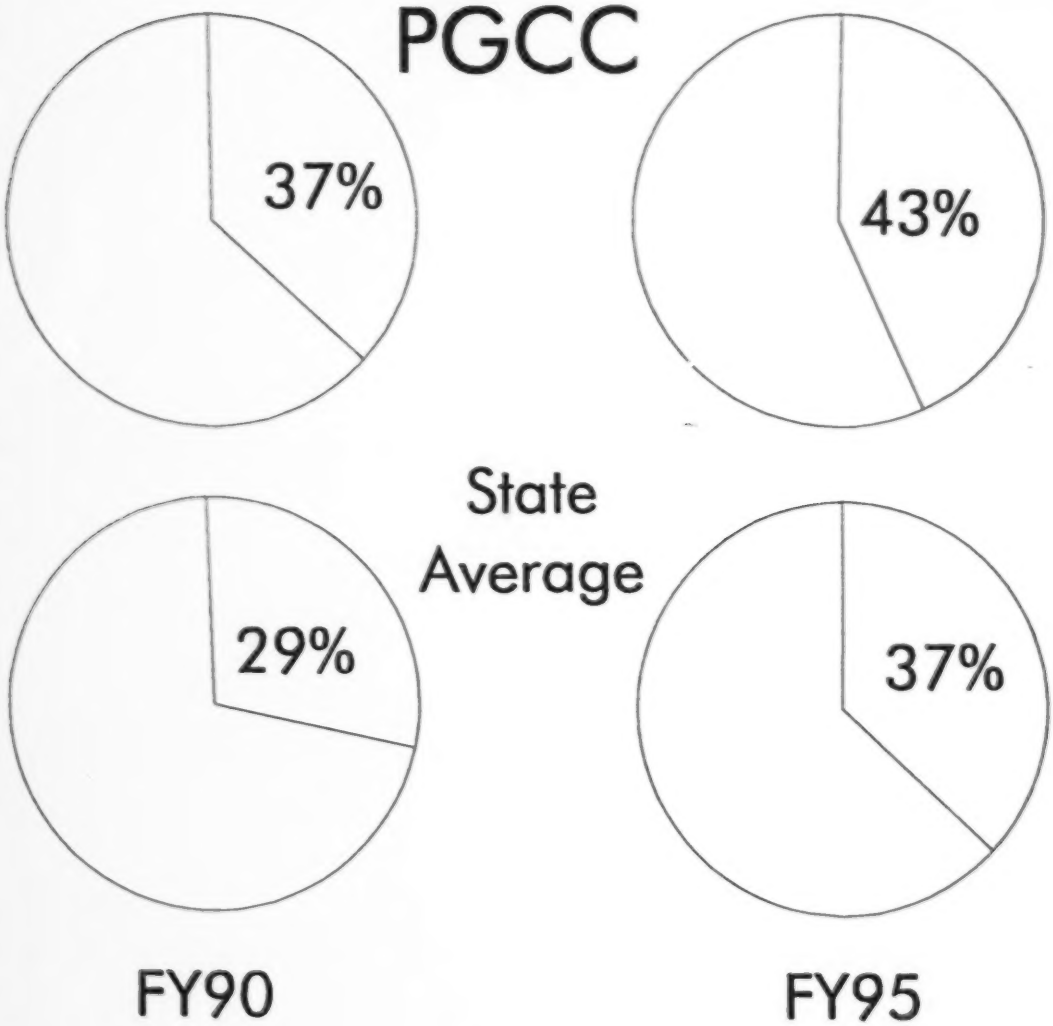
Receives Less County Aid than Peers

FY94 County Contribution to Community College

	PGCC	Peer Average
Percent of College Budget	28%	36%
Percent of County Budget	1.3%	2.5%
County Aid per Student	$1,351	$1,958

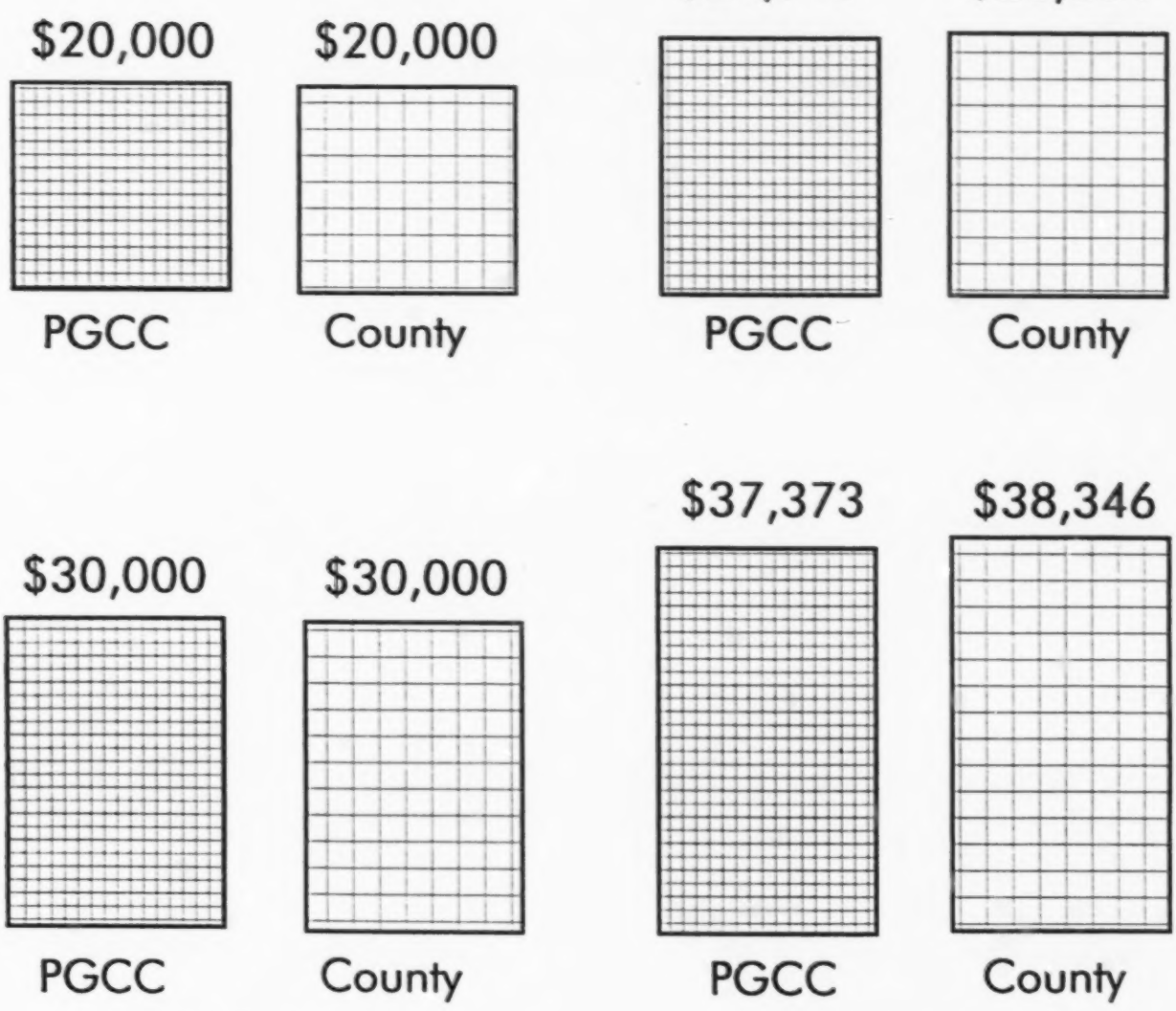
PGCC
Students Pay Increasing Share

Tuition and Fee Revenue
Percent of College Budget



PGCC

Salaries Lag Behind County Employees



PGCC

Low Salaries = Recruiting Disadvantage

Average Salaries of Assistant Professors, FY96

College	Number of Faculty	Average Salary	Budgeted Increase for FY97
Howard	28	$39,738	2.5%
Montgomery	55	38,937	4.5%
Anne Arundel	38	37,023	4.0%
Frederick	26	36,741	3.0%
Dundalk	17	36,652	1.5%+
Essex	28	35,950	1.5%+
Catonsville	41	35,703	1.5%+
Charles	18	35,497	N.A.
Prince George's	29	34,130	?

SOURCE: MACC Databook, MACC salary survey 5-30-96

PGCC
An Investment that Pays

- Serves more county residents than any other college
- Provides opportunities to underserved populations
- Works to improve county schools
- Operates efficiently
- Trains and maintains skilled workforce
- Increases incomes and tax revenues
- Builds a better community

Appendix

AIR Code of Ethics

PGCC OIRA FY95 Goals and Objectives

PGCC OIRA Organizational Chart

PGCC OIRA Position Descriptions

IR Effectiveness Assessment Worksheet

ASSOCIATION FOR INSTITUTIONAL RESEARCH

AIR

CODE OF ETHICS

Adopted by the membership 12/18/92

SECTION I: COMPETENCE.

I(a) **Claims of Competence**. The institutional researcher shall not, in job application, resume, or the ordinary conduct of affairs, claim a degree of competency he/she does not possess.

I(b) **Acceptance of Assignments**. The institutional researcher shall not accept assignments requiring competencies she/he does not have and for which she/he cannot effectively rely upon the assistance of colleagues, unless the supervisor has been adequately apprised.

I(c) **Training of Subordinates**. The institutional researcher shall provide subordinates with opportunities for professional growth and development.

I(d) **Professional Continuing Education**. The institutional researcher has the responsibility to develop her/his own professional skills, knowledge, and performance.

SECTION II: EXECUTION.

II(a) **Use of Accepted Technical Standards**. The institutional researcher shall conduct all tasks in accordance with accepted technical standards.

II(b) **Initial Discussions**. Before an assignment is begun, the institutional researcher shall clarify with the sponsor and/or major users the purposes, expectations, strategies, and limitations of the research.

II(b)(i) Special care shall be taken to recommend research techniques and designs that are appropriate to the purposes of the project.

II(b)(ii) Special care shall be taken to advise the sponsor and/or major users, both at the design phase and, should the occasion arise, at any time during the execution of the project, if there is reason to believe that the strategy under consideration is likely to fail or to yield substantially unreliable results.

II(c) **Identification of Responsibility**. The institutional researcher shall accept responsibility for the competent execution of all assignments which he/she, or a subordinate, undertakes, and shall display individual and/or office authorship, as appropriate, on all such reports.

II(d) **Quality of Secondary Data**. The institutional researcher shall take reasonable steps to insure the accuracy of data gathered by other individuals, groups, offices, or agencies on which he/she relies, and shall document the sources and quality of such data.

II(e) **Reports**. The institutional researcher shall ensure that all reports of projects are complete; are clearly written in language understandable to decision-makers; fully distinguish among assumptions, speculations, findings, and judgments; employ appropriate statistics and graphics; adequately describe the limitations of the project, of the analytical method, and of the findings; and follow scholarly norms in the attribution of ideas, methods, and expression and in the sources of data.

II(f) **Documentation**. The institutional researcher shall document the sources of information and the process of analysis in each task in sufficient detail to enable a technically qualified colleague to understand what was done and to verify that the work meets all appropriate standards and expectations.

SECTION III: CONFIDENTIALITY.

III(a) **Atmosphere of Confidentiality**. The institutional researcher shall establish a general atmosphere of awareness about confidentiality issues within the institutional research office.

III(b) **Storage and Security**. The institutional researcher shall organize, store, maintain, and analyze data under his/her control in such a manner as to reasonably prevent loss, unauthorized access, or divulgence of confidential information.

III(c) **Release of Confidential Information**. The institutional researcher shall permit no release of information about individual persons that has been guaranteed as confidential, to any person inside or outside the institution except in those circumstances in which not to do so would result in clear danger to the subject of the confidential material or to others; or unless directed by competent authority in conformity with a decree of a court of law.

III(d) **Special Standards for Data Collection.**

III(d)(i) **Balancing Privacy Risks Against Benefits.** The institutional researcher shall, at the design stage of any project, thoroughly explore the degree of invasion of privacy and the risks of breach of confidentiality that are involved in the project, weigh them against potential benefits, and make therefrom a recommendation as to whether the project should be executed, and under what conditions.

III(d)(ii) **Developing Specific Guidelines.** The institutional researcher shall prepare or approve a written description of any specific steps beyond the regular guidelines within the institutional research office that are necessary during the execution of said assignment to insure the protection of aspects of privacy and confidentiality that may be at specific risk.

III(d)(iii) **Disclosure of Rights.** The institutional researcher shall insure that all subjects are informed of their right of refusal and of the degree of confidentiality with which the material that they provide will be handled, including where appropriate, the implications of any freedom of information statute.

III(d)(iv) **Apprisal of Implications.** The institutional researcher shall apprise institutional authorities of the implications and potentially binding obligations of any promise to respondents regarding confidentiality and shall obtain consent from such authorities where necessary.

SECTION IV: RELATIONSHIPS TO THE COMMUNITY.

IV(a) **Equal treatment.** The institutional researcher shall promote equal access and opportunity regarding employment, services, and other activities of his/her office, without regard to race, creed, gender, national origin, disability or other accidental quality; and in analysis, demeanor, and expression shall be alert to the sensitivities of groups and individuals.

IV(b) **Development of Local Codes of Ethics.** The institutional researcher should develop and promulgate a code of ethics specific to the mission and tasks of the institutional research office; and should strive to cooperate with fellow practitioners in the institution in developing an institution-wide code of ethics governing activities in common.

IV(c) **Custody and Archiving.** The institutional researcher shall apply all reasonable means to prevent irrevocable loss of data and documentation during its immediately useful life; and, being aware of the role of data as institutional historic resource, shall act as advocate for its documentation and systematic permanent archiving.

IV(d) **Assessment of Institutional Research.** The institutional researcher shall develop and implement regular assessment tools for the evaluation of institutional research services.

IV(e) **Institutional Confidentiality.** The institutional researcher shall maintain in strict confidence and security all information in her/his possession about the institution or any of its constituent parts which by institutional policy is considered to be confidential, and shall pursue from Section III of this Code all processes for that purpose as are appropriate.

IV(f) **Integrity of Reports.** The institutional researcher shall make efforts to anticipate and prevent misunderstandings and misuse of reports within the institution by careful presentation and documentation in original reports, and by persistent follow-up contact with institutional users of those reports. If an institutional research report has been altered, intentionally or inadvertently, to the degree that its meaning has been substantially distorted, the institutional researcher shall make reasonable attempts to correct such distortions and/or to insist that institutional research authorship be removed from the product.

IV(g) **External Reporting.** The institutional researcher has an obligation to the broader community to submit and/or report accurate data and professionally responsible interpretive material when requested by legitimate authority, including federal, state, and other governmental agencies and accrediting bodies. With respect to private inquiries, such as those from guidebook editors, journalists, or private individuals, the institutional researcher, should he/she respond, is bound by the same standards of accuracy and professionally responsible interpretation.

SECTION V: RELATIONSHIPS TO THE CRAFT.

V(a) **Research Responsibilities.** The institutional researcher shall seek opportunities to contribute to and participate in research on issues directly related to the craft and in other professional activities, and shall encourage and support other colleagues in such endeavors.

V(b) **False Accusations.** Institutional researchers shall take care not to falsely demean the reputation or unjustly or unfairly criticize the work of other institutional researchers.

V(c) **Unethical Conduct of Colleagues.** The institutional researcher shall take appropriate measures to discourage, prevent, or correct unethical conduct of colleagues when they are unwittingly or deliberately in violation of this code or of good general practice in institutional research.

PRINCE GEORGE'S COMMUNITY COLLEGE
Office of Institutional Research and Analysis

FY95 GOALS AND OBJECTIVES

6.1 Executive Management

6.11 Maintain a statistical information base adequate to support internal management and external reporting needs.

6.111 Develop a data management and hardware acquisition plan to enable downloading of complete freeze file datasets so that all databases utilized by OIRA can be maintained on office microcomputer systems, in conjunction with Information Systems decentralization initiatives. (IO)

6.112 Update the Fall 1990, 1991, and 1992 longitudinal cohort tracking files, for use in student persistence and outcomes analysis. (R)

6.113 Publish two additional modules of the institutional factbook. (R)

6.114 Support statewide efforts to produce comparative community college data through collaborative projects with the Maryland Community College Research Group, consultation with Maryland Higher Education Commission staff, and other avenues. (R)

6.12 Provide analytical services to support effective instruction, institutional planning, marketing, and administration.

6.121 Complete needs assessment studies for programs under consideration for formal proposal to MHEC. (R)

6.122 Evaluate programs identified for review by the Chapter 465-Section 8 mandate, MHEC, or PGCC instructional administrators. (R)

6.123 Compile and synthesize student outcomes data and write the college's *Student Learning Outcomes Assessment Report* for submission to the Maryland Higher Education Commission. (R)

6.124 Provide the Board of Trustees with reports on college facilities, staffing, third week enrollment, student outcomes, and other issues requested by the President. (R)

6.125 Prepare the college's annual *Cost Containment Report*, including a discipline cost analysis, evaluation of high-cost disciplines and programs, and analysis of the county's funding contribution to the college. (R)

6.126 Prepare the college's annual *Minority Achievement Report* as required by the Maryland Higher Education Commission. (R)

6.127 Support the college's integrated marketing and recruitment campaign through application of the *PG-TRAK* custom lifestyle-cluster, geo-demographic analysis system and other marketing and enrollment management research. (SP)

6.128 Assist in the development of the general design and request for proposal for a community adult learner needs assessment and image study to be conducted by an outside contractor during FY96. (SP)

6.129 Complete an analysis of alternative distribution schemes for class schedules, to maximize their cost-effectiveness as a marketing tool. (SP)

6.1210 Prepare an environmental scanning report for the Planning Council to support development of the 1995-2000 *Master Plan*. (R)

6.1211 Prepare a report on the status, as of the end of Spring 1994, of students entering PGCC in Fall 1990. (R)

6.1212 Evaluate the relationship between student performance in developmental education and subsequent credit courses. (SP)

6.1213 Assess the performance of former PGCC students at four-year colleges and universities using MHEC Transfer Student System data. (R)

6.1214 Use multivariate analysis to assess the relationship of selected student background factors with student outcomes. (SP)

6.1215 Update enrollment projection models to provide the best possible estimates of short- and long-term enrollment forecasts for budgeting, facilities planning, and other internal and external planning needs. (R)

6.1216 Analyze campus facilities inventory and space utilization, and provide data support for capital projects. (R)

6.13 Oversee institutional survey and focus group research.

6.131 Conduct survey and focus group research to support institutional effectiveness and meet external primary research requirements. (R)

6.132 Assist campus offices in the design and analysis of program-specific survey and focus group research. (R)

6.133 Design and conduct customer service satisfaction surveys for administration to students and staff to support campus continuous improvement initiatives. (SP)

6.14 Communicate research findings and planning data to all campus constituencies who can benefit.

6.141 Circulate executive summaries, OIRA publication listings, and full reports (where appropriate) widely on campus. (R)

6.142 Deliver oral presentations of new or significant research findings. (R)

6.143 Begin development of an on-line, menu-driven electronic factbook and OIRA report abstract listing for implementation on the college's new telecommunications network. (SP)

6.15 Coordinate the fall federal and state statistical reporting cycle, and participate in other institutional research activities requested by the Maryland Higher Education Commission, the U.S. Department of Education, and other agencies.

6.151 Ensure timely and accurate completion of IPEDS, OCR, ED, MHEC, and other official reports routed to OIRA. (R)

6.152 Provide appropriate data for Middle States and program-specific accrediting agencies. (R)

6.153 Participate in the NCES Postsecondary Education Quick Information System (PEQIS) surveys. (R)

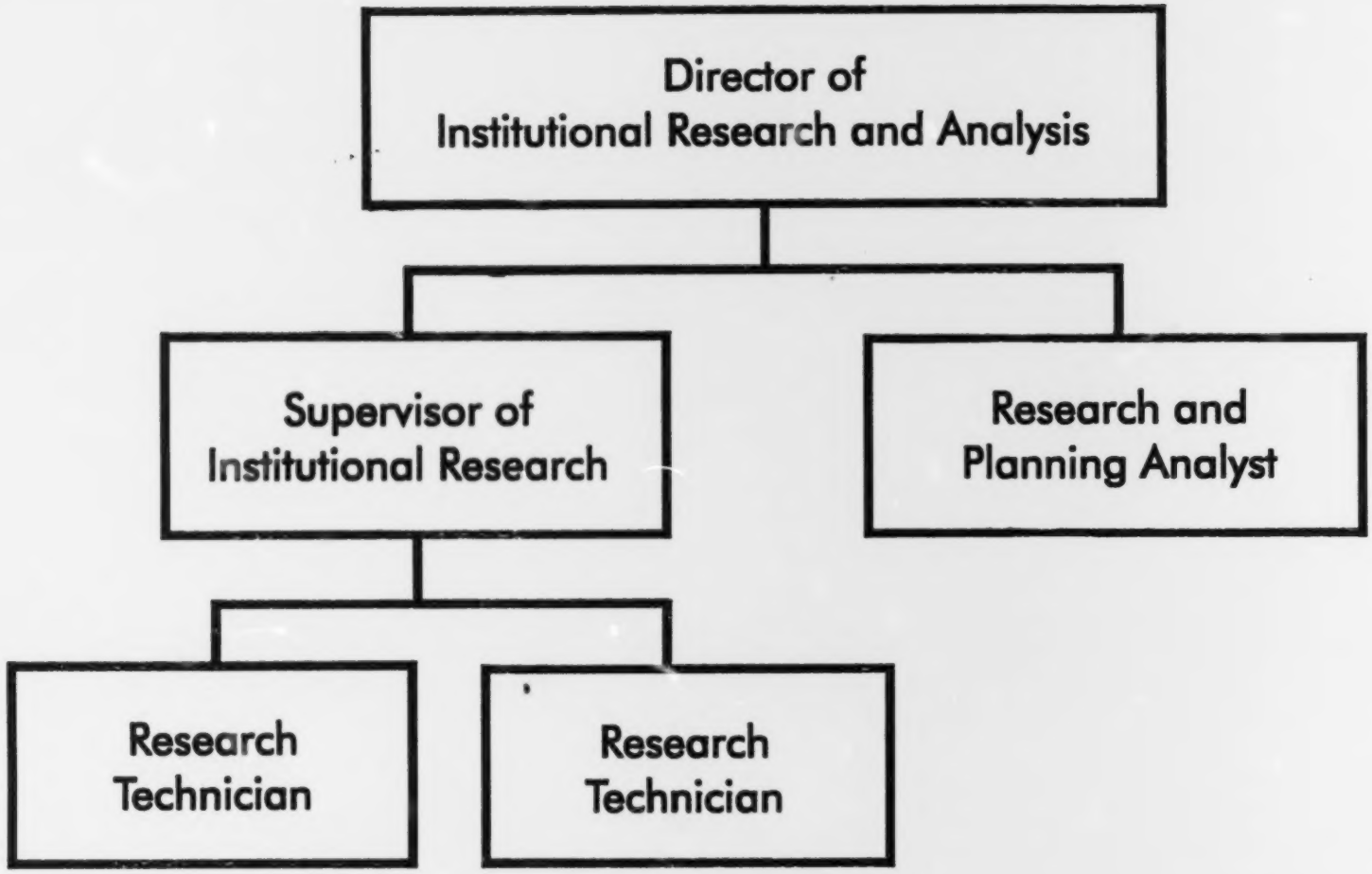
6.154 Complete surveys and other data submissions requested by non-governmental organizations as appropriate. (R)

6.16 Improve OIRA office capabilities and efficiency.

6.161 Upgrade OIRA computer systems through expansion of RAM memory and purchase of a high-capacity external hard drive for data management and archiving. (R)

6.162 Exploit the networking capabilities of the new telecommunications system for data sharing and electronic communication, both on campus and with off-campus colleagues and organizations through the Internet. (SP)

6.163 Initiate office crosstraining in major software applications. (R)


Director of
Institutional Research and Analysis
Supervisor of
Institutional Research
Research and
Planning Analyst
Research
Technician
Research
Technician

POSITION DESCRIPTION

Approval: _____ Date: _____

Concurrence: _____ Date: _____

TITLE: Director of Institutional Research and Analysis

DUTIES AND RESPONSIBILITIES:

1. Manage the operations of the Office of Institutional Research and Analysis, including deciding research priorities and supervising and directing the activities of the supervisor of institutional research, research and planning analysts, research technicians, and faculty research associates assigned to OIRA.

2. Support institutional planning by preparing environmental scanning reports, enrollment projections, and other information pertinent to the College's future.

3. Design and conduct studies to document student learning outcomes to support institutional assessment activities in response to accountability requirements.

4. Direct analysis of enrollment and administrative data and prepare reports to support informed decisionmaking and policy formation.

5. Coordinate federal and state statistical reporting, including the annual IPEDS/MHEC data collection, and participate in other institutional research activities requested by the Maryland Higher Education Commission.

6. Disseminate information by serving on College councils, committees, and task forces and by making formal oral presentations of research findings and planning data to appropriate College audiences.

7. Direct data analysis supporting instructional program evaluation and curriculum development, and prepare statistical reports supportive of effective educational program functioning.

8. Oversee institutional survey research, including consultation on design and interpretation of survey projects conducted by other offices on campus.

9. Maintain a statistical database and collection of associated descriptive and analytical reports as a College reference.

10. Participate in the activities of professional higher education research and planning associations.

POSITION DESCRIPTION

Approval: _____ Date: _____

Concurrence: _____ Date: _____

TITLE: Supervisor of Institutional Research

RESPONSIBLE TO: Director of Institutional Research and Analysis

FUNCTION: Supervisor is responsible for the traditional institutional research function, including but not limited to maintaining office database management systems, coordinating state and federal reporting, directing research projects as assigned, administering survey research, performing data analysis utilizing SAS, SPSS, and other statistical software, and writing analytical reports. Supervisor trains and oversees research technicians engaged in activities under her or his direction, and serves as liaison with Information Systems to maintain and improve database access and analytical capabilities.

DUTIES AND RESPONSIBILITIES:

1. DEVELOP and MAINTAIN database systems adequate to support the office's research and planning functions.

2. DIRECT individual research projects as assigned, SUPERVISE support staff, and WRITE reports of methodology and findings.

3. PERFORM data analysis as required to support office research and planning activities, using appropriate methodologies and statistical techniques, including the capabilities of the SAS and SPSS statistical analysis systems.

4. DESIGN and ADMINISTER survey research.

5. PREPARE statistical reports required by outside agencies; REVIEW paper and tape submissions to ensure accuracy and consistency.

6. SERVE as liaison with Information Systems and REPRESENT the office on the Information Systems Priorities Group.

7. SERVE on collegewide committees as assigned.

8. PERFORM other duties as assigned by the Director of Institutional Research and Analysis.

POSITION DESCRIPTION

Approval: _____ Date: _____

Concurrence: _____ Date: _____

TITLE: Research and Planning Analyst

RESPONSIBLE TO: Director of Institutional Research and Analysis

FUNCTION: Analyst conducts research studies and policy analyses as assigned by the Director of Institutional Research and Analysis, develops and maintains enrollment forecasting models, and provides data analysis support for research and planning activities including but not limited to environmental scanning, needs assessments, program evaluations, cost analyses, economic impact analyses, staffing and facilities utilization studies, and student outcomes assessment. Analyst uses the SAS and SPSS statistical analysis systems, database, spreadsheet, and other microcomputer applications software, and other tools appropriate to carrying out this function. Analyst prepares written analytical reports appropriate for an executive management audience. Analyst supervises technicians assigned to projects under her or his direction.

DUTIES AND RESPONSIBILITIES:

1. DESIGN and COMPLETE research projects as assigned.

2. PERFORM data analysis as required to support the office's research and planning activities, using appropriate methodologies and statistical techniques.

3. DESIGN and IMPLEMENT enrollment projection models.

4. WRITE reports describing methodology and findings of assigned projects.

5. PERFORM other duties as assigned by the Director of Institutional Research and Analysis.

POSITION DESCRIPTION

Approval: _____ Date: _____

Concurrence: _____ Date: _____

TITLE: Research Technician

RESPONSIBLE TO: Supervisor of Institutional Research

FUNCTION: Technician is responsible for providing data collection, aggregation, tabulation, and elementary analysis supporting the office's research and planning activities. Duties include conducting telephone and mail surveys, creating computer files (data entry), preparing tables and spreadsheets for analysis, and preparing graphics facilitating the communication of numerical information. Technician prepares state and federal statistical reports, and conducts literature reviews and other library research as needed. A thorough knowledge of microcomputer systems, plus spreadsheet, database, graphics, and word processing software is essential.

DUTIES AND RESPONSIBILITIES:

1. PERFORM data tabulation and elementary analysis using microcomputer spreadsheet and database management software.

2. PREPARE statistical reports required by outside agencies; REVIEW paper and tape submissions for accuracy and consistency.

3. ADMINISTER mail and telephone survey research; MONITOR responses and PREPARE data for further analysis.

4. PREPARE graphics for final reports and group presentations using microcomputer software and peripherals.

5. PERFORM secondary source/library research and PREPARE written summaries of findings.

6. PERFORM other duties as assigned by the Supervisor of Institutional Research or the Director of Institutional Research and Analysis.

Respondent Description
2 yr 4 yr public private
Fall credit headcount _____
Research staff FTE _____

IR Effectiveness Assessment

Within the past year, have you

• Participated regularly in meetings of the president's cabinet	Yes	No
• Influenced collegewide budgeting and resource allocation decisions	Yes	No
• Raised an issue onto the agenda of top decisionmakers by your research	Yes	No
• Completed analyses that influenced a major institutional policy decision	Yes	No
• Made a presentation to your governing board or a funding authority	Yes	No

Access-Influence Subtotal ☐

• Created or updated longitudinal student cohort tracking files	Yes	No
• Monitored office productivity with a project management system	Yes	No
• Used multivariate statistical analysis techniques for an office project	Yes	No
• Accessed or downloaded data from the Internet or World Wide Web	Yes	No
• Collaborated with other colleges or associations on a research project	Yes	No

Tool-Technique Subtotal ☐

Total IR Effectiveness Score ☐

©1996 C. Clagett

Craig A. Clagett has directed the institutional research function at Prince George's Community College in Largo, Maryland, since July 1985. His research interests have included environmental scanning, enrollment management, the effective presentation of data, student outcomes assessment, and higher education finance. He has published articles on these topics in *Planning for Higher Education*, *Assessment Update*, *The Primer for Institutional Research*, *Community College Review*, and other journals. Dr. Clagett was co-author of *The Institutional Research Practitioner* (1990), a popular guidebook to the field. He serves on the editorial review boards of the *Journal of Applied Research in the Community College* (New Forums Press) and the *AIR Professional File* published by the Association for Institutional Research. Past professional service includes terms as president of the National Council for Research and Planning, president of the Maryland Association for Institutional Research, and member of the executive board of the Consortium for Institutional Effectiveness and Student Success in the Community College. He earned his Ph.D. in political economy at the University of Maryland at College Park, where he also received a B.S. in marketing and operations research and a M.A. in government and politics.